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ABSTRACT

This document is intended to assist organizers of professional development activities for education faculty members of preservice teacher education programs at Ohio colleges and universities. The following materials are included: (1) a decision matrix to organize the decisions made by facilitators of professional development activities; (2) a framework for integrating school-to-work (STW) into preservice teacher education programs that includes the conceptual base and specific ideas for preparing future teachers to be effective in STW systems; (3) a presentation on contextual learning as a strategy for connecting school and work; (4) a crosswalk presentation demonstrating relationships among the ideas underpinning the framework for integrating STW into preservice teacher education and the assessment criteria listed in Ohio and national teaching standards; (5) a report discussing the competencies and foundation skills identified by the Secretary's Commission for Achieving Necessary Skills as necessary for successful induction into careers; (6) a mind mapping procedure designed to enable faculty to think about STW and its relationships to preservice teacher education; (7) a comical skit to help faculty members raise and address issues related to integrating STW into teacher education

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programs; and (8) examples of college syllabi and ways instructors have integrated contextualized learning into their education courses. (MN)

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2001

School-to-Work

Professional Development Package

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for College and University Education Faculty

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2001
School-to-Work

Professional Development Package for College and University Education Faculty

School-to-Work Integration Coalition:
Preservice Teacher Education Project

A Collaborative Effort of the State University Education Deans,
The Ohio Board of Regents, and the Ohio Department of Education

Funded by Ohio School-to-Work
2001

The original
Professional Development Package for College and University Faculty
was a publication of the work team of the third year of the project,
"School-to-Work Systems Integration Coalition:
Preservice Teacher Education Project."

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The 2001 revisions were completed by
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With funding from the Ohio School-to-Work Office, the State University Education Deans have established a Systems Integration Coalition to undertake this work, along with three related interuniversity projects. The Ohio State University College of Education has provided project management for the Coalition.

This publication is supported by a state grant from the Federal School-to-Work Opportunities Act of 1994. The opinions expressed herein do not necessarily reflect the position or policy of the U.S. Department of Labor, and no official endorsement by the U.S. Department of Labor should be inferred.

As an equal opportunity employer and service provider, it is the policy of the state school-to-work office and supporting agencies that educational activities, employment practices, programs, and service are offered without regard to race, color, national origin, sex, religion, disability, or age in employment of the provision of services.

Acknowledgments

This package is a result of four years of study and development by a work team of college and university faculty from across Ohio. Appreciation is extended to those individuals who contributed to this publication. Individual contributors of specific sections are identified throughout the package.

The package is one of the products created in the project, "School-to-Work Integration Coalition: Preservice Teacher Education Project." The project is one of several funded by Ohio School-to-Work through the State University Education Deans organization, in collaboration with the Ohio Department of Education and the Ohio Board of Regents.

As principal investigator, I extend my appreciation to all members of the work team, including Dora Bailey who significantly contributed to this revision.. Thanks to those within the Ohio School-to-Work Office, Ohio Board of Regents, and Ohio Department of Education who made this project possible, including, but not limited to, Susan Streitenberger, Jon Tafel, Vicki Melvin, and Charlotte Coomer.

The quality of all activities of the coalition has been enhanced through the collaborative nature of the collation, led by Sandra Pritz and Dixie Sommers of The Ohio State University. The projects of the coalition have been stronger as a result of the cross-project activities.

Finally, the support of the administration, faculty, and staff at Bowling Green State University allowed the project, including the creation of this package, to be conducted in an efficient and effective manner. Deans Les Sternberg and Ellen Williams offered support throughout the project. In addition, thanks are extended to project specialist Karen Johnson, secretary Marsha Olivarez, and the staffs of the Offices of Sponsored Programs and Research and Grants Accounting.

Robert G. Berns
Principal Investigator
Bowling Green State University
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Introduction

This package is intended to serve as a resource for organizers of professional development activities for Education faculty members of preservice teacher education programs at colleges and universities in Ohio. Selected material would also be applicable for use in preservice teacher education classes.

The sections of the package are listed below.

Decision Matrix

This section provides a means of organizing the decisions a facilitator of professional development activities will make.

Framework

A Framework for Integrating School-to-Work into Preservice Teacher Education Programs includes the conceptual base and specific ideas for preparing future teachers to be effective in school-to-work systems throughout the state.

Contextual Learning PowerPoint

This presentation entitled *Contextual Learning: Connecting School-Life to Work-Life* was created specifically for this package. A CD-Rom disk, note pages, and transparencies are included.

Crosswalk PowerPoint

This crosswalk presentation shows relationships among the ideas presented in *A Framework for Integrating School-to-Work into Preservice Teacher Education Programs* and Assessment Criteria of PRAXI III, the 10 Performance Areas in Ohio's Licensure Standards, and the Five Core Propositions of the National Board for Professional Teaching Standards. A CD-Rom disk, note pages, and transparencies are included.

SCANS PowerPoint

This presentation entitled *SCANS, What Work Requires of People* is based on A SCANS Report for American 2000, developed by the Secretary's Commission on Achieving Necessary Skills (SCANS) of the U.S. Department of Labor. This report identifies competencies and the foundation necessary for successful induction into careers.

Mind Mapping

The mind mapping procedure is explained as a means for faculty to think about school-to-work and its relationship to preservice teacher education.

Skit

This comical skit is intended to assist faculty members to raise issues related to integrating school-to-work into teacher education programs and how they might be addressed on college campuses.

Examples

This section includes examples of college syllabi and how instructors have woven contextualized learning throughout their courses.

Resource Bank for STW Technical Assistance

The Ohio State University
Sandra G. Pritz
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Objective

Make needed, quality technical assistance for school-to-work endeavors available statewide through an efficient system coordinated by higher education.

Strategy

Develop standards for school-to-work technical assistance. Design and continuously enhance a system for identifying and qualifying technical assistance resources and for soliciting expressions of need, with a procedure for matching the offerings to the needs. Use the Resource Bank platform to develop and promote performance indicators and standards for employment and training initiatives for youth (14-18) to address the Workforce Investment Act mandate. Throughout, coalesce the resources and insights of the Coalition members and market the system.

Activities

The project staff and a work team developed standards appropriate for the Resource Bank and designed a system for soliciting both offerings and expressions of need for technical assistance, operationalized as part of the School-to-Work Workforce Develop-ment Clearinghouse website (www.stwclearinghouse.org). This system will continue to be enhanced along with an operations manual to document the process for continuity and replicability. Also in Year 4, stakeholder representatives will be involved in the development of performance indicators and related standards for youth services, which will be available through the Resource Bank.

Coalition Management

The Ohio State University
College of Education
Sandra G. Pritz, Project Manager
(614) 688-8148 • pritz.1@osu.edu

Principles

The Coalition has been managed according to the following principles:

- The outcomes of our cooperative labor should demonstrate the benefits of synergistic collaboration.
- Each project should be given leadership by a different institution.
- Projects should be conceived to use the value added of a multi-institutional team.
- Individuals who can add value should be able to participate on a team.
- A strong yet flexible foundation should be created to enable continued contributions to the Ohio STW system.

SUED is a voluntary association of state university deans which seeks to improve educational opportunities for all the people of Ohio.

"The School-to-Work Systems Integration Coalition provides an excellent opportunity for collaboration among our universities as we collectively contribute to Ohio's critical school-to-work initiatives. The outcomes achieved during the first three years of the Coalition, as well as the important activities planned for the fourth year, have led the State University Education Deans to continue to enthusiastically support the Coalition projects. We certainly appreciate the opportunity to contribute to the many benefits being realized through the efforts of a wide range of individuals and organizations in our State."

Dr. Les Sternberg
SUED Chair and Dean, College of Education and Human Development, Bowling Green State University

State University Education Deans (SUED) School-to-Work Systems Integration Coalition

a collaborative effort of the State University Education Deans, the Ohio Board of Regents, and the Ohio Department of Education funded by the Ohio School-to-Work Office

YEAR 4

Preservice Teacher Education

Bowling Green State University
Robert G. Berns
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Objective

Prepare prospective teachers to implement new program structures, curricula, and teaching methodologies based on school-to-work concepts, principles, and practices.

Strategy

Create a faculty development package for use in orienting preservice teacher education faculty in school-to-work. Plan and implement projects at publicly and privately funded colleges and universities that move forward the integration of school-to-work into their teacher preparation programs.

Activities

The work team will revise and update the self-contained faculty development package based on a research survey of faculty and on use in orienting Education faculty about school-to-work. Also, faculty from up to 19 colleges and universities across Ohio will progress to the next level to plan and implement projects that will include the development of new or revised courses, syllabi, and materials for preservice teacher education programs. Faculty will also write manuscripts for professional publications and deliver presentations at professional meetings to disseminate information about their projects.

School-to-Work Workforce Development Clearinghouse

The Ohio State University
Susan Imel
(614) 292-8606 • imel.1@osu.edu

Objective

Provide comprehensive, systematic information to connect learning and work. Adapt as the needs of clients change.

Strategy

Continue the statewide clearinghouse with links to other existing resources, an electronic network system, and personalized assistance. Create a needs-sensing system.

Activities

In Year 1, Ohio STW stakeholder representatives were surveyed to find out what kinds of information they need and in what format. Data about the type of STW information currently available were also collected. In Year 2, with advisory board guidance, a clearinghouse was designed to "fill the gaps" by collecting and organizing the information needed and not already available through other means. A website was developed at: **<http://stwclearinghouse.org>**. In Year 3, a website section featuring Ohio STW Showcase Practices was made available through a searchable, on-line database. In addition, a read-only listserve was created to encourage exchange of STW information among stakeholders. In Year 4, an electronic newsletter will be added; the clearinghouse will continue to serve as a resource and referral agent for existing sources and will provide information to meet changing needs of clients.

Reconceptualizing School Counseling

The Ohio State University
Darcy Haag Granello and Susan J. Sears
(614) 292-8183 • granello.1@osu.edu • sears.1@osu.edu

Objective

Provide professional development and current materials to counselor educators to improve their capacity to integrate school-to-work concepts into their programs for preservice counseling students according to a reconceptualized model of school counseling. Continue to provide professional development and current materials to additional practicing school counselors and develop an on-site model prototype.

Strategy

Continue to work with a statewide work team with representation from counselor education training programs, the Student Development Division at the Ohio Department of Education, and professional counseling associations. Disseminate the reconceptualized school counseling model and related materials, emphasizing strategies for counselor educators to foster counseling that helps K-12 students make the transition from school to work.

Activities

Continue development of a training manual to be used by counselor educators. Train counselor education faculty in the implementation of the model and the materials developed. Implement the model program with a focus on the needs of at-risk youth and use the site to train others.

Decision Matrix for Planning Professional Development for College and University Faculty in School-to-Work

Dora L. Bailey
Youngstown State University
July 2000

DECISION MATRIX

It is assumed that everyone with whom you are working will need oriented to the contextual learning perspective that is central to intertwining School-life to Work-life. The "Framework for Integrating School-to-Work into Preservice Teacher Education Programs" pamphlet serves as a backdrop for these thoughts. Therefore, this document is suggested as a reference for you as you plan your presentations. This notebook will help you organize the experience you are planning for preservice and inservice teacher educators at your college or university.

Although we have not predicted all of decisions that you will need to make as you plan your session, we have identified some of the dynamic decisions that you will need to consider. These decisions include whether or not you need to make a pre-assessment of the level of knowledge that your fellow faculty have about School-to-Work, whether or not you want to do a building process with a one hour introduction followed by one or two longer sessions, the is size of your audience, the audience representation, and the time frames you have available. The Pre-Assessment section is designed to help you give audiences a tantalizing taste of the concept, Contextual Learning, in order for them to judge whether or not they want to engage in more information gathering and conversations about the concept. Recognizing that higher education audiences might be reluctant, we have built this section to allow for gradual emersion. The Audience Size section recognizes that there may only be some faculty interested in the topic or your faculty may be quite large. When you have a small audience it is good practice to provide for frequent conversations about concepts appearing on the slides. Therefore, there will be less material presented but more depth in considering the material that is presented. The Audience Representation section recognizes that you may want to speak to specific audiences. The

common divisions in teacher education were chosen, early, middle & adolescent childhood, although you could create your own categories. The Time Frames section makes an attempt to consider the most likely blocks of time for a faculty to give serious consideration to his topic.

We have provided a Suggested Decision Matrix with suggested sections for certain circumstances and a blank decision Matrix so that you can record your own decisions. The matrix-graphics on the next pages of this section can help you consider those decisions.

This notebook provides helpful directions to take once you have made the previous decisions. It provides materials for sessions that are merely transmission of information and for sessions that are constructivist in nature. The section references alongside of the decisions that you make refer to sections in this notebook that we think will be useful as you design an experience for your faculty in *contextual learning* that connects school-life with work-life. These sections are merely suggestions and references for the situation you describe.

DECISION MATRIX

*See pages 4-7 for suggestions on pre-assessment methods.

PRE-ASSESSMENT*	AUDIENCE SIZE	AUDIENCE REPRESENTATION	TIME FRAMES
1 Hour Introduction ⏩Assess audiences' knowledge of terms in below presentation. ⇒ Contextual Learning PowerPoint Presentation pp. 1-16	**Small** (2-10) ⇒ Contextual Learning PPP ⇒ Examples Section ⇒ Crosswalk PPP	***Early Childhood Faculty*** ⇒Contextual Learning PPP ⇒E.C. Example	**Three Hours** ⇒Contextual Learning PPP ⇒One Example
Followed by 1-hr. Session ⏩**SAME** ⇒Contextual Learning PPP pp. 14-23 ⇒Mind Map Section	**Medium** (11-30) ⇒Contextual Learning PPP ⇒ Examples Section ⇒ Crosswalk PPP	***Middle Childhood Faculty*** ⇒Contextual Learning PPP ⇒M.C. Example	**One Day** ⇒J. D. Hoye Video ⇒Contextual Learning PPP ⇒Crosswalk PPP ⇒Examples Section
Followed by a 2nd 1-hr. Session ⏩**SAME** ⇒Contextual Learning PPP pp. 23-33 ⇒Crosswalk ⇒Mind Map Section	**Large** (21-40) ⇒Contextual Learning PPP ⇒Mind Map Section ⇒ Crosswalk PPP ⇒ Skit section ⇒SCANS PPP	***Adolescent Child. Faculty*** ⇒Contextual Learning PPP ⇒J. D. Hoye Video ⇒A.C. Example	**Two Days** ⇒J. D. Hoye video ⇒Contextual Learning PPP ⇒Crosswalk PPP ⇒ Examples Section ⇒SCANS PPP ⇒Mind Map Section ⇒Skit section
		All Levels ⇒Contextual Learning PPP ⇒SCANS PPP ⇒Examples Section ⇒Mind Map Section ⇒ Crosswalk PPP	

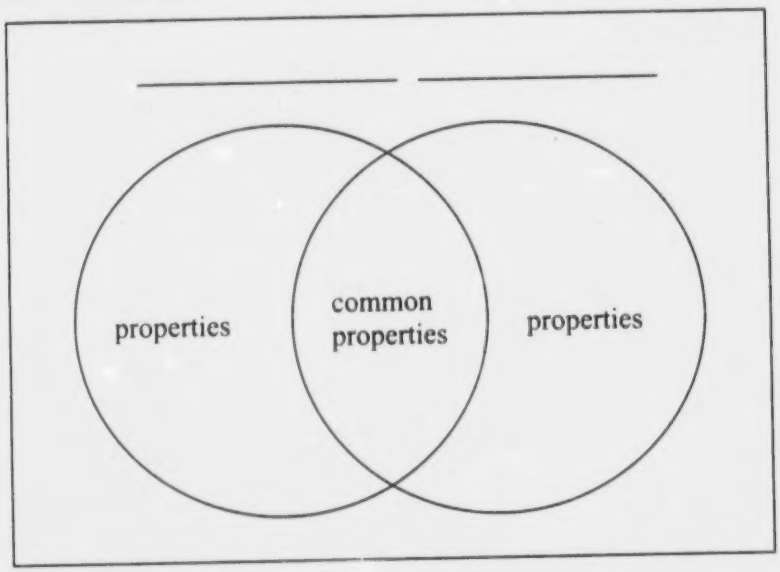
DECISION MATRIX

PRE-ASSESSMENT	AUDIENCE SIZE	AUDIENCE REPRESENTATION	TIME FRAMES
1 Hour Introduction Section - Section - Section -	**Small** (2-10) Section - Section - Section -	***Early Childhood Faculty*** Section - Section - Section –	**Three Hours** Section - Section - Section -
Followed by 1 Session Section - Section - Section -	**Medium** (11-30) Section - Section - Section -	***Middle Childhood Faculty*** Section - Section - Section –	**One Day** Section - Section - Section - Section - Section -
Followed by a 2nd Session Section - Section - Section -	**Large** (21-40) Section - Section - Section -	***Adolescent Childhood Faculty*** Section - Section - Section -	**Two Days** Section - Section - Section - Section - Section - Section -
		All Levels Section - Section - Section -	

Pre-Assessment Methods

Venn Diagram

The idea in a Venn Diagram (Nagy, 1988) is to compare the properties of each of two items. The properties common to both are listed in the intersection. When two or more people do this together an observer can monitor the depth of thinking occurring and the type of thinking occurring. In addition, an observer can assess the level of prior knowledge and the way participants use their prior knowledge to engage.

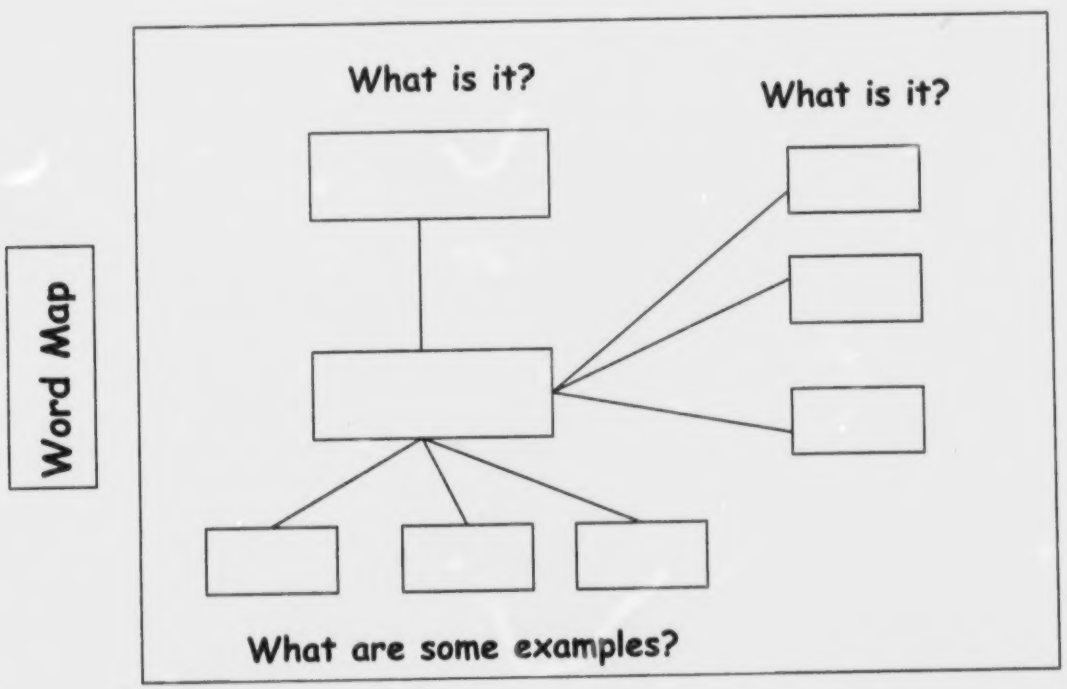


Examples of words/phrases that the audience could work on for 5 minutes are 'traditional teaching and contextual teaching', 'schooling and working', or 'school-life and work-life', and 'PRAXIS III and Ohio Licensure Standards'. These phrases come from the initial slides in the PowerPoint Presentations. Preview the presentations to locate other words and phrases you think your audience would benefit from thinking about before you begin your presentation. This type of activity helps the audience become active listeners as they automatically compare their work with the presentation information.

Nagy, W.E. (1988). *Teaching vocabulary to improve reading comprehension.* Newark, DE/Urbana, IL: IRA/NCTE.

Word Map

Another good method for thinking about words is the Word Map. Schwartz and Raphael (1985) called this the *concept of definition procedure*. This procedure was developed to help children in and above the middle grades to gain control of vocabulary acquisition process. This method teaches them the kind of information that comprises a definition and helps them use context clues and background knowledge to build a definition. Although this was developed for children's learning, it makes a great method for discussion of prior knowledge about central concepts to a presentation. It is always a good idea to assess how much an audience knows and what are their preconceptions, collectively and individually, about the presentation topic. The visual depiction of the elements of a given concept enables discussion. Below is a blank Word Map and directions for use. As you work with this method, you will probably come up with variations in process and product.

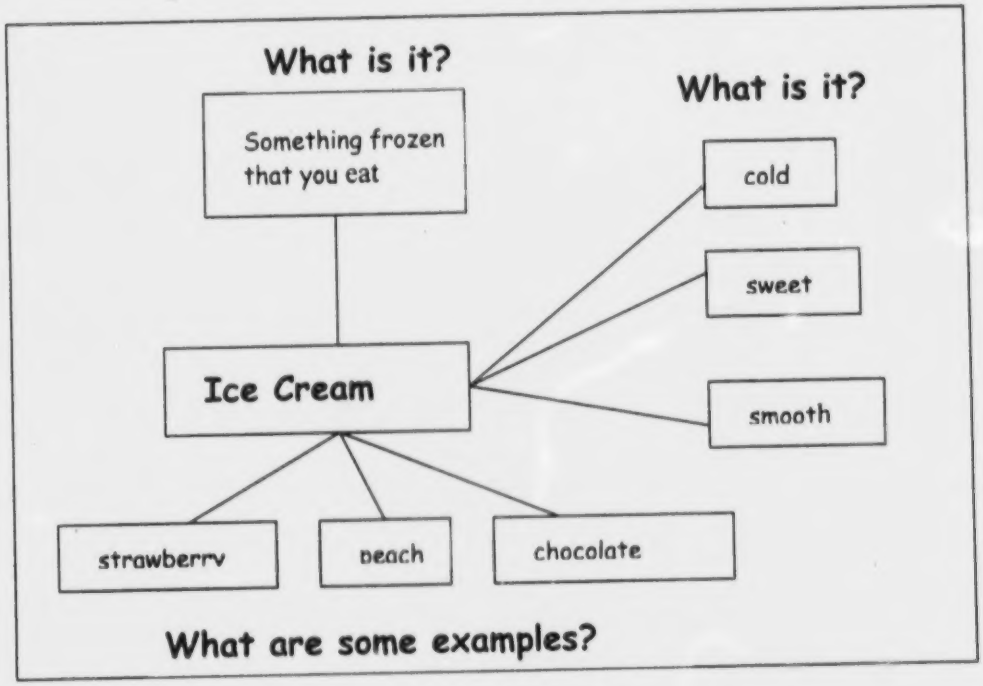


Schwartz, R. M., & Raphael, T. E. (1985). Concept of definition: A key to improving students' vocabulary. *The Reading Teacher, 39,* 198-203.

The concept under consideration is composed of three types of information: 1) class: *What is it?*, 2) properties (that distinguish the concept from others): *What is it like?*, and 3) examples (of the concepts): *What are some examples?* After working with the Word Map participants can write a sentence including all of the information they placed on the map.

Several concepts, from these PowerPoint presentations that would work well with this method, are: school, work, contextual, teaching, and learning. As you preview the material, you will uncover many more. Although adults adapt to this kind of thinking easily, it is always a good idea to share a simplified example before encouraging them to work on any activity. Below is a simplified example (Cooper, 2000).

Completed Word Map for Ice Cream



Cooper, D .J., (2000). *Literacy: Helping Children Construct Meaning.* New York: Houghton Mifflin Company. Pp. 245-251.

A Framework for Integrating School-to-Work into Preservice Teacher Education Programs

A Publication of
The School-to-Work Systems Integration Coalition:
Preservice Teacher Education Framework Project

A Collaborative Effort of
The State University Education Deans, The Ohio Board of Regents, and The Ohio Department of Education

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A Framework for Integrating School-to-Work into Preservice Teacher Education Programs

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With funding from the Ohio-School-to-Work Office, the State University Education Deans have established a Systems Integration Coalition to undertake this work, along with three related interuniversity projects. The Ohio State University College of Education has provided project management for the Coalition.

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Introduction and Acknowledgments

This Framework is a result of a two-year discussion by a work team consisting of faculty from universities across Ohio and others representing various organizations interested in the preparation of future teachers to be effective in schools in which educational reform efforts include school-to-work. The ideas in this document have emerged from that dialogue.

The work team members' insight into the teaching and learning process allowed for the Framework to emerge as a scholarly, yet practical document. Various team members contributed to the Framework by offering ideas, organizing thoughts, writing sections, reviewing drafts, and supporting the process. Significant contributors to particular sections are acknowledged in footnotes throughout the document. These work team members are especially recognized for providing leadership in writing those sections. However, all work team members offered important input for the various sections. Indeed, this document is a result of collaboration among all of the team members. The names of the work team members are listed on the inside front cover of this monograph.

The Framework is one of the products created in the project, "School-to-Work Integration: Preservice Teacher Education Framework." The project is one of four funded by Ohio School-to-Work through the State University Education Deans (SUED) organization, in collaboration with the Ohio Department of Education and the Ohio Board of Regents.

As principal investigator of this project, appreciation is extended to all of the team members. In addition, on behalf of the work team, thanks is offered to those who reviewed the document: Dora Bailey, Cassaundra El-Amin, Patricia Hauschildt, Dean Clara

Jennings, J.D. Hoye, Abbejean Kehler, Julia McArthur, and Sandra Pritz. Dora Bailey also assisted with the final editing of the document.

Thanks also to those within the Ohio School-to-Work Office, Ohio Board of Regents, and Ohio Department of Education who made this project possible including, but not limited to, Robert Radway, Susan Streitenberger, Jon Tafel, and Vicki Melvin. The Steering Committee of the SUED School-to-Work Coalition deserve recognition, especially Charlotte Coomer who served as the liaison from the Steering Committee to this work team.

The coalition management provided by Nancy Zimpher, Susan Sears, and Sandra Pritz of The Ohio State University not only provided effective coordination among the four SUED projects, but Sandra Pritz's liaison role on this project's work team proved critical to the achievement of the project's objectives.

Finally, the support of the administration, faculty, and staff at Bowling Green State University allowed the project, including the creation of this Framework, to be conducted in an efficient and effective manner. Deans Les Sternberg and Jim Sullivan offered support throughout the project. In addition, the many details were competently handled by secretary Marsha Olivarez, graduate assistants Lisa Willson and Julie Kandik, and the staffs of the Offices of Sponsored Programs and Research and Grants Accounting.

Appreciation is extended to all of these professionals for their many contributions to this project and, thus, to teacher education and school-to-work.

Robert G. Berns, Principal Investigator
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A Framework for Integrating School-to-Work into Preservice Teacher Education Programs[1]

The School-to-Work Opportunities Act passed by Congress in 1994 addresses the importance of helping all students in public elementary and secondary schools acquire the knowledge, skills, abilities, and information to prepare for a smooth entry into the work environment. Although smooth entry into the work environment is the goal, this Act tends to go beyond current educational programs that lead to specified careers. Individuals discover after they leave formal schooling that learning and working are inseparable and interwoven throughout life in our contemporary society. In some cases, learning becomes a natural course whether it supports work and/or one's general quality of life. The School-to-Work (STW) initiative has sought to develop the recognition that work provides individuals the opportunity to develop in order to obtain from society what they need to live their lives (e.g., food, shelter, and leisure), and to do so in a meaningful and satisfying way. This recognition and understanding requires knowledge, skills, abilities, and information that can be learned in schools. Indeed, embracing this perspective brings relevance to learning and schools.

In order to weave the concepts of school and work into the lives of our children, educators can look at the way we teach our teachers who educate students. Through the experiences of a team of university and college faculty and educators, it was discovered that the incorporation of STW into preservice teacher education began to drive discussions and encourage refinement in respective curriculum and courses of study. The aim of the discussions has been the advancement of quality integration of STW into academic instruction in order to embody and embrace the comprehensive nature of work

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[1] Robert G. Berns and Darcy Haag Granello are acknowledged for their significant contributions to this section.

and the individual's relationship to it. This document is a result of a two-year discussion by this work team, and it brings relevant philosophies to confluence in a Framework to be used by each university or college to form a basis for their own discussions.

History of Preservice Teacher Education and School-to-Work[2]

This document provides a description, or Framework, of how university and college faculty members, drawn from Ohio's higher education institutions and involved with preservice teacher preparation, view their roles and responsibilities and the foundation of their programs that pave the way for children to move from school-centered lives to work-centered lives. The following Framework can serve as a guide at both the macro and micro levels so that colleges and universities in Ohio can and will integrate STW into their teacher preparation programs.

For Ohio's STW system to succeed in preparing today's youth for the employment and educational opportunities of tomorrow, education, business and industry, organized labor, community-based organizations, non-profit organizations, parents, and students must forge partnerships and relationships that enable pupils to integrate school-focused and work-focused learning and foster real-world applications of discipline-related principles and concepts. Key players in these partnerships are faculty members in Ohio's universities and colleges who are responsible for preparing teachers, counselors, and administrators for the public schools.

Ohio's commitment to build a strong and comprehensive STW system depends on strengthening the connections between education

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[2] Robert G. Berns, Dora L. Bailey, and Abbejean Kehler are acknowledged for their significant contributions to this section.

and employment, whether that employment comes before, during or after high school graduation, vocational or technical training, college preparation, or graduate study. STW experiences are for all children (i.e., early childhood, middle childhood, and adolescents), including those children with disabilities, with limited English proficiency, and with diverse racial and cultural backgrounds. The goal is to develop in all children the competencies, confidence, and connections that can lead to successful work lives and responsible participation in the community.

This Framework is a product of a project funded by Ohio School-to-Work through the State University Education Deans(SUED) in conjunction with the Ohio Department of Education and the Ohio Board of Regents. As a part of this project, "Ohio's School-to-Work Systems Integration Coalition: Preservice Teacher Education Framework," a team of faculty from six public universities in Ohio created an initial Framework plan in 1997, intended to be an evolutionary piece, continually revised, updated and enhanced by university faculty members. University faculty who participated in the Integrating School-to-Work into Preservice Teacher Education Conference in July of 1997 advanced the Framework in both substance and form. Participants used this pilot project as a starting place for discussion and professional growth. Through the experience new partnerships were forged among colleges and universities as well as with local education agencies and regional alliances. In essence, the School-to-Work Preservice Teacher Education Project's Work Team invited all college and university faculty to become involved in the creation of this exciting new approach to education.

As a result of the second year funding for this project, the work team was expanded to include representatives from private colleges and other universities, Ohio School-to-Work Coordinators, Professional Development Center Directors, and Career Development Coordinators. In addition, principal investigators of planning and

implementation grants awarded to eight universities served on the work team. These grants provided funding for activities intended to integrate STW into preservice teacher education programs at the universities.

The following Framework provides platforms for discussions that will prompt and necessitate that each institution examine and change the composition of their program as well as the means of delivery of their preservice teacher education program. Parts of the Framework group into two general clusters; the **Contextual Framework** that includes a Vision, Mission, Philosophical Context, Rationale, and Economic Assumptions; and the **Discussion Platforms** that include Relationships of STW and School Curriculum Models, Ohio Teacher Education and Licensure Standards, and Career Theory and Practice; Strategies for Integrating STW into Teacher Education Programs, A Model for Integrating STW into Preservice Teacher Education Programs in Ohio, Outcomes, and Barriers/Issues and Solutions.

Contextual Framework for School-to-Work in Preservice Teacher Education

The Vision for Preservice Teacher Education[3]

As teacher education faculty at colleges and universities in Ohio, the work team sees the ultimate goal of education to be the enrichment of the lives of children by helping them gain the knowledge and skills they need to lead satisfying and productive lives. In contemporary society the quality of life is dependent on having the educational skills needed to participate fully, including those skills

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[3] Darcy Haag Granello and Robert G. Berns are acknowledged for their significant contributions to this section.

required for the multiple roles of citizen, worker, family member, and individual.

To prepare teachers for Ohio schools that pursue this goal, universities and colleges must meet the educational needs of aspiring teachers for the 21st century and beyond. Priorities in Ohio for the schools of the future will be based on such initiatives as the Standards for Ohio Schools, Goals 2000, STW, and BEST practices, which will, themselves, continue to evolve. These programs focus on simultaneous changes in several arenas (i.e., teacher education, schools, school and community partnership, state requirements and local curriculums). These elements, in partnership, are required to improve children's learning.

Knowledge, skills, and abilities that ensure the continuous improvement and innovation in the teaching and learning process as consistent with current research findings will be the focus of these programs. The work team sees a future where all teacher education programs in the state prepare individuals who contribute to these priorities. All teacher education programs in Ohio will use that knowledge to update their curricula and better prepare future teachers.

Today, educators know more than ever about how children learn as a result of studies and writings completed by Gardner (1987, 1993), Caine and Caine (1994), Madden (1991), Sylwester and Cho (1992), and Sylwester (1995). Education Psychology and Human Development content, theories and concepts such as learning styles, multiple intelligences, brain-based learning, metacognition and so forth become much more meaningful when placed in the context of STW. Teacher candidates familiar with STW concepts and strategies will be more effective in designing and delivering relevant classroom experiences to individual learners.

Contemporary assessments of the educational performance of United States students reinforce the notion that children need stronger skills beyond the minimal levels relating to the areas of mathematics, science, technology, and communication. In addition, current trends for globalization in work settings suggest the need to emphasize social perspectives and skills relating to international connections. Finally, some critics of the U.S. educational system have strongly advocated reform to develop school learning environments that emphasize the interdisciplinary nature of problem solving in the real world of work that children face in school and outside school.

The work team sees a future where prospective teachers learn the following teaching and learning principles:

- Children's learning is enhanced when teachers focus on the child.
- Children learn more and retain it longer when they apply their knowledge and skills to meaningful contexts.
- An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems (including career-oriented situations). Effective teachers facilitate children's understanding of why they should learn the content.
- Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance.
- Children learn best when new ideas are connected to what they already know and have experienced.
- Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.
- All children can learn. The wide diversity of learners in the state requires an understanding of a variety of cultures, races, aptitude levels, and interests.

- Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.

The compelling nature of the need to transform preservice teacher education programs is reflected in the business literature that indicates that knowledge has become the key resource, the basis for the work of the world, and that wealth-creating activities will not be the traditional land, labor, and capital, but rather the application of knowledge to work and to multifaceted uses for the living of productive and satisfying lives. All of education must respond to an unprecedented challenge to enable children to achieve in this transformed world.

The faculty of colleges and universities throughout Ohio must play a significant role in producing teachers who are innovators and who connect with the community, including the parents of their children, businesspeople, and community leaders. These newly educated teachers will be expected to implement a curriculum that is directed toward meeting the needs of children and our society. They must be prepared to create learning environments that enable those needs to be met. They must also set high standards for all children.

School-to-work can provide a focus and a directive for organizing the academic and skill-based outcomes of formalized schooling. Prospective teachers, from the early days of preparation to the moment they enter their classrooms as professionally-licensed faculty, must be able to function successfully in the schools of the present and future.

Prospective teachers need to understand the role of STW in enhancing the curriculum and be prepared to competently contribute to effective educational outcomes. Examples of specific areas in which university preservice teachers might be prepared appear below:

- Offer experiences for students to learn a particular subject competency in the context of the workplace. Through contextual learning, children will see how a concept, piece of information, or skill is applied in work settings. From that vantage children will better retain the knowledge and will be able to apply it in new settings and other contexts.
- Offer experiences that allow children to explore career opportunities identified through career pathways and realize for themselves the need for post-secondary education.
- Offer experiences that allow children to shadow individuals in a variety of work settings.
- Support STW activities beyond their classrooms.

In order to graphically show the variety of ways that children experience work, a Work-cluster Concept Map was developed by the work team (Appendix A). Introducing children to work experiences can be accomplished through any one of the Work clusters depicted in Appendix A. The Work clusters are not exclusive but more representative and are:

- Career/Skills/Pathways,
  - Special Careers
  - Relationship to Content
- Definitions of Work,
  - Traditional Definitions
  - Emerging Definitions
- Stages of Development,
  - Childhood Play
  - Work at School
  - Work at Home
- Beliefs/Attitudes.
  - Pro-social Beliefs
  - Alternative Conceptions

The Stage of a Child's Development, depicted in the Concept Map, and child interest are principal in order to make any instructional platform outlined here relevant. How does work differ from play? Why are some activities compensated and others not? In order to address these concepts preservice teacher educators can help teachers refine their district's curriculum framework; to review it for pieces that are already embedded, and when concepts are missing, identify appropriate venues for inclusion.

Mission of School-to-Work and Preservice Teacher Education's Role

School-to-Work and Preservice Teacher Education[4]

The mission of School-to-Work in Ohio is to ensure that every Ohio child graduates from high school and beyond with the knowledge and skills needed to succeed in the ever-changing world of work – and is prepared for lifelong learning. To accomplish this, necessary components of STW must be utilized in the reformulating/reconceptualizing of preservice teacher education programs.

School-to-Work involves three core elements:

- school-based learning,
- work-based learning, and
- connecting activities between the two.

School-based learning is classroom instruction based on high academic and skills standards, and work-based learning offers a wide

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[4] Robert G. Berns and Darcy Haag Granello are acknowledged for their significant contributions to this section.

spectrum of experiences to students from field trips to workplaces to job shadowing to structured training and mentoring at work sites. Examples of connecting activities include the integration of classroom and work site experiences, matching pupils with participating employers, training work site mentors, and building and maintaining bridges and communication between the school and workplaces beyond schools. For this mission to be successful, preservice teacher preparation programs need to integrate STW into the preparation of future teachers and school personnel.

School-to-Work in a Philosophical Context[5]

A successful, comprehensive and integrated STW system encourages all children to prepare for membership in their communities, whether that community is their family, peer group, class, job site, state, nation, or world. It must encourage all children to look ahead to their educational and employment opportunities and choices. It must substantially improve learning through interesting and relevant experiences that integrate school-based and work-based learning and foster real-world applications of principles and concepts.

For a school-to-work system to be effective, education is the key component. Therefore, school-to-work, both conceptually and operationally, needs to be placed in a philosophical context to determine potential points of congruence with existing school practice as well as potential points of resistance. Since STW has profound implications for curriculum design and development, it should be juxtaposed with dominant orientations to curriculum that exist in the curriculum literature. Of the numerous constructs available, perhaps the clearest one is the conceptual model offered by Elliot Eisner and

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[5] Leigh Chiarelott is acknowledged for his significant contribution to this section.

Elizabeth Vallance (1979, 1985) Their model contains four orientations to curriculum that can encompass virtually all philosophical positions usually studied in educational philosophy courses and hence, most likely to be familiar to practitioners in the field The orientations are as follows:

- Academic Rationalism
- Development of Cognitive Processes
- Personal Relevance
- Social Adaptation/Social Reconstruction

Curriculum design and development is based upon the construction of learning environments that reflect (1) the needs of the learner, (2) the needs of society, and (3) content or knowledge needs (i.e., what is worth knowing?). The following paragraphs describe how STW relates to each of the orientations and how STW meets the needs enumerated herein.

Academic Rationalism. The Academic Rationalist orientation tends to be characterized by the belief that the acquisition of content is an end in itself and that some content is more valuable than others. At the elementary level, a strong basic education in the three R's is preferred over a more "process-oriented" curriculum. Students are assessed on their acquisition of this content frequently, usually through some kind of norm-referenced measurement device. Along with the three R's, science (especially physical sciences) and history are emphasized, as well as a strong grounding in traditional canons of literature.

At the secondary level, content is solidly linked with those areas most frequently associated with preparation for four-year colleges. Any specialized education is not highly valued in this orientation since it is viewed as situation specific rather than providing a solid "general" education. As might be expected, content tends to

follow the liberal arts model emphasized in most four-year colleges and universities.

The Academic Rationalist views the learner as a "tabula rasa" or an "empty vessel" needing to be filled with the most challenging, timeless content available. The learner's mind is seen as a "muscle" needing to be trained through rigorous learning and thinking experiences, especially those offered through the liberal arts. The learner is generally seen as a passive recipient of this content although one expects that while passively absorbing information, the learner's mind is actively involved in storing and retrieving this information when necessary.

Societal needs are met for the Academic Rationalist through the preparation of a well informed citizenry. Rather than training learners for specific jobs, trades, or in technical skills, a strong, general, liberal education will provide the learner with the base of information needed to tackle any job and succeed. The learner will have developed the necessary "habits of mind" to handle any job that he/she aspires to and has demonstrated the acumen for performing. Advocates of this orientation might include Robert Maynard Hutchins, Allen Bloom, William Bennett, E.D. Hirsch, Chester Finn, Lynn Cheney, Diane Ravitch, and others.

School-to-work should not be viewed as leaning too heavily on vocational education or technical preparation for specific jobs. A liberal arts background that emphasizes basic education is an important aspect of preparing individuals for "work." Instilling a work ethic into each learner is an important curricular goal that requires a challenging curriculum. The use of instructional strategies associated with STW contributes to the development of individuals who contribute to the improved welfare of the community. Therefore, STW can, indeed, be viewed as congruent with philosophical beliefs that constitute Academic Rationalism.

Development of Cognitive Processes The second orientation, Development of Cognitive Processes, also views content as important, but as a means to an end, not as an end in itself. Content is useful inasmuch as it helps learners develop intellectual processes such as critical thinking, problem solving, decision making, and moral judgments. The major goal of this orientation is learning how to learn. Constructivist approaches to teaching and learning find support in this orientation. No specific content or subject has precedence over another, and, in a sense, all learning is viewed as vocational learning since the processes learned are useful in any job, profession, or career. This orientation tends to reduce the reliance on "classical, traditional" subjects and supports the emergence of "new" content that might be more relevant for developing thinking skills.

The learner is seen as an active participant in the learning environment because the teacher takes on a different role in guiding the developmental process of thinking rather than primarily transmitting information. Thus, the learner engages the content usually at the application level or higher on Bloom's Taxonomy. Advocates of this orientation lean heavily on Bloom's Taxonomy and especially on moving beyond simply memorizing and/or comprehending.

Society's needs are met by having a highly intellectually flexible citizenry who can adapt to the career changes these individuals will need to make throughout their lives. Businesses and industry are crying out for graduates who "know how to think" rather than those who are narrowly trained for a specific vocation or profession. This orientation prepares citizens who can handle the dilemmas presented by a post-modern world because they have developed the capacity for lifelong learning and critical thinking. Advocates of this orientation

might include John Dewey, Jean Piaget, Benjamin Bloom, Lawrence Kohlberg, and Jerome Bruner.

School-to-work is generally supported by this orientation because STW stresses the importance of the *processes* involved in work rather than specific knowledge or skills. As noted earlier, emphases tend to be placed on the intellectual skills needed to be an effective worker in any business, profession, career and life. Workers, whether entrepreneurial, management, or labor, need to be lifelong learners and highly adaptable to the ongoing changes in the world of work and the problem-solving skills necessary to succeed in that changing world. Rather than the play/work or learning/working dichotomy, the learner's development of the relationship of the concept of work, learning and play from home and school experiences is an important belief in STW within this document.

Personal Relevance. The third orientation, Personal Relevance, closely follows the existentialist philosophy. The individual learner best determines the content knowledge one needs to appropriate from all the possible content available. The key element of the Personal Relevance orientation is choice. The learner should decide which outcomes s/he needs to meet, which learning experiences will best enable the learner to reach those outcomes, the order in which those experiences will be encountered, and the manner in which the attainment of outcomes will be assessed. This makes the learning authentic to the learner and the outcomes meaningful to attain. Along with free choice, the learner also assumes responsibility for his/her learning. The term, self-motivation, becomes a redundancy since the learner will choose what s/he wants to learn. In essence, educators don't "teach" anyone anything. The learner chooses to learn or chooses to resist what educators want her/him to learn. Ultimately, the choice of content learned is up to the learner.

Clearly, learner needs are met through the choices made. The teacher takes on the role of resource person or sometimes, co-learner. The individual can choose to move as quickly or slowly as she or he wants through the curriculum outcomes that are selected. "Currere" (the root word of curriculum) becomes the experience of running the race rather than the race course to be run. The learner thus becomes an authentic 'whole" person rather than whatever the educational system wants her/him to be.

Society's needs are met through the development of these "whole" persons. A self-actualizing population is a mentally healthy, productive population. Individuals who learn to make choices and take responsibility for their actions should not need the threat of laws and rules to govern their actions. As long as they understand the social consequences of individual actions, these individuals should contribute to the development of a healthy society. Advocates of this orientation might include Carl Rogers, Art Combs, Rollo May, William Glasser, A. S. Neill, and, of course, Jean-Paul Sartre and Albert Camus.

The implications of the Personal Relevance orientation for STW are rather intriguing. STW allows for greater choice in selecting and preparing for one's life's work which may include a variety of work and career experiences. By learning more about the wide variety of careers throughout an individual's education, learners can make better-informed work and career choices throughout their lives.

School-to-work also advocates the development of responsible workers willing to face the consequences of their actions. Providing work-based learning opportunities is important as is self-evaluation in assessing one's progress toward career goals. Experiences at work sites in the community should be predicated on what the learners would find to be personally meaningful.

Social Adaptation/Social Reconstruction Social Adaptation/ Social Reconstruction are really opposite sides of the same concept. Social advocates see content as being determined by what is needed to best fit into society. This content includes the knowledge, skills, and attitudes necessary to raise a family, get a job, earn a living, and contribute to the maintenance of the social fabric. Preparation to meet society's needs include all college preparatory experiences, vocational/technical experiences, and/or family living experiences. The belief is that society needs learners who can easily assimilate and adapt to the ever-changing demands of the existing economic system.

The Social Reconstructionist, on the other hand, believes that content knowledge should be used to teach learners how to change society. The current dominant culture is beset by a variety of social ills, and Social Reconstructionist believe that merely to teach learners to fit into that flawed social fabric is miseducative. Advocates of this orientation tend to use critical theory as their content and critical pedagogy as their teaching technique.

In the Social Adaptation orientation, learners' needs are met by preparing them for specific roles in the world of work, in the community, and in the family. In other words, learners' needs are met by meeting institutional needs. The Social Reconstructionist sees learner needs being met by creating change agents who can proactively identify social ills and work to correct them. Inherent in this process is an analysis of the problems created by a capitalist economic system and the implicit class structure it creates when a segment of society provides labor for wages while another segment gains profits based on capital invested. The problems that result from the ensuing class struggles provide the basis for change.

Society's needs are met for the Social Adaptationist by first identifying the specific social needs and then providing curricular experiences that prepare learners to meet those needs. By identifying the skills one needs for whatever role(s) one is to assume as an adult, the basis for the curriculum is formed. The curriculum is built on meeting those needs. For the Social Reconstructionist, the ultimate goal is to create a "social utopia" where individuals are constantly working to realize an "ideal" society, free of class struggle and the widening economic gap between the "haves" and the "have-nots." Advocates of the Social Adaptation orientation might include Franklin Bobbitt, W. W. Charters, presidents of most companies, and Bill Gates. Social Reconstructionists might include Karl Marx, Paulo Friere, Henry Giroux, and Peter McLaren.

For STW, the Social Adaptation orientation probably constitutes a "best fit" in terms of the national STW philosophy. The key element would be the necessity of matching the workplace needs with the school curriculum. The SCANS materials certainly provide a linkage between the Social Adaptation orientation and many of the STW concepts since it divides work competencies into general and interpersonal (Appendix E).

The Social Reconstruction orientation provides a serious challenge to the STW philosophy because of the reconstructionists' emphasis on a critique of inequitable educational preparation that in effect creates "closed" workers and denies more intellectual and critical curricula for some. However, STW is not intended to create "mindless automatons" that will fit nicely into the "cogs of our economic machinery." Rather, balance is necessary to attain and sustain economic well-being with a commitment to social change necessary to narrow and ultimately eliminate the economic chasm between the "haves" and the "have nots."

STW pulls from each of these orientations when curricula are developed. STW builds a strong work ethic, supports character education and links successful workers with a solid foundation in basic skills and a strong liberal education (Academic Rationalism). School-to-work also helps develop lifelong learners who are highly flexible and skilled in problem solving, critical thinking, and decision making (Development of Cognitive Processes).

STW allows for choice, encourages learners to take responsibility for their decisions, and emphasizes the need for meaningful learning experiences in the school and in the workplace (Personal Relevance). Finally, successful workers need to be able to change the ineffective elements of the system from within. In other words, successful change agents must also be able to understand the system(s) they are trying to change, and to do so, they must first fit into the workplace successfully. STW contributes to that quest (Social Adaptation and Social Reconstruction).

Rationale Behind School-to-Work[6]

Individuals who will be successful in the marketplace of the 21st century will surely excel at solving problems, thinking critically, working in teams, and learning constantly on the job. In this new global and technology-driven economy, the skills of the workforce are a company's major competitive advantage. The best jobs in this emerging workplace will go to those who are academically strong and highly skilled. Even these skills will not be sufficient. Individuals must also master: listening and communicating, applying reasoning and problem-solving to work-related problems, creating teams in which leadership emerges, and exhibiting a strong work ethic. Corporate,

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[6] Darcy Haag Granello and Robert G. Berns are acknowledged for their significant contributions to this section.

community, and individual success in this new economy means that our educational system has to change, too.

Educators can no longer afford a tiered educational system with high standards of academic preparation for some, vocational preparation for others, and a low-standards general track for still others. Today's schools must offer all P-14 children challenging, relevant academics and meaningful work-based learning experiences in their communities.

The consequences of our educational system being out of sync with the changing nature of work have taken a toll on American business. More than 50% of U.S. employers say they cannot find qualified applicants for entry-level positions. It is estimated that U.S. business spends nearly $30 billion training and retraining its workforce. Until society fully addresses the mismatch between what and how children are learning and what they will be required to know and be able to do, to ensure successful careers, this figure is likely to continue to rise.

Young people, their families, and the community expect every individual to be prepared to enter the workforce upon completion of schooling. However, adolescents who currently are engaged in work need to know what work, attitudes, responsibilities, expectations, and knowledge they are expected to possess. It is expected that schools bear the responsibility for creating successful, well-marked paths P-14 children can follow to move from school (not necessarily at the end of schooling) to first jobs or from school to continued education and training. STW connects school-based quality academic classes with experiences in the workplace. It builds partnership, understandings, and communications between schools and employers and leaves room for local control of local needs.

STW helps students, families, businesses, and the communities achieve their goals by turning local businesses and communities into classrooms for work-based learning experiences. Parents can become more actively involved in all aspects of their children's work/career exploration and development when early work based opportunities are local and are aligned with school based curricula. Appendix D attempts to show a multifaceted depiction of "The Dimensions of School" that includes three facets: levels, core areas, and delivery systems. The levels are early childhood, middle childhood, adolescents, and beyond adolescence. Core areas considered in schooling are: learners & parents, curriculum, instruction, assessment, safe schools, personnel & education services, professional development, and continuous improvement. Delivery systems used to educate our children are: public, private, chartered non-public, and home schooling.

Young workers become encouraged because their paychecks and progress successively improve, their hopes rise, and the community and the nation become stronger, because productivity increases our ability to participate in world markets. When this happens, everyone wins.

STW encourages P-14 children to develop their interests and start learning about how they might apply those interests, talents, skills and aptitudes in the world of work. P-14 children and their parents can then take an active role in planning their courses and work experiences so they can better prepare for their next steps to a job, an apprenticeship, a two-year technical or community college, or a four-year college or university. "The Dimensions of Work" (Appendix B) to be considered during these decisions are aligned in three dimensions: self/individual concerns, skills and behaviors, and beliefs and attitudes. The self/individual dimension, according to the graphic depiction on Appendix B, is concerned with developmental level,

demographics, compensation level, status and power, cultural issues, and functions of work. The beliefs and attitudes dimension tend to align along prosocial and alternate beliefs. Skills and behaviors dimension consists of two components: skills/careers and definitions of work.

Economic Assumptions[7]

A salient reason why STW has become so engaging is that it ameliorates the effects of children reaching the marketplace and the doors of an employer today and tending to arrive: (1) with scant or inappropriate skills, (2) developmentally or attitudinally unprepared, (3) clueless about what it is that they are really facing in an employment situation, and/or (4) shocked regarding the low value of their services at the entry level.

Economic factors are important motivations that drive our interest in improving school-based learning to work-based learning. Since the STW initiative is intended to result in a "better life" for individuals by providing a healthy economy, the following set of economic assumptions contributes to an understanding of the rationale behind the integration of STW in preservice teacher education so that teachers will be better prepared to meet the work needs of their children:

- A market-oriented system is based largely on the individual accepting responsibility for the quality of his/her standard of living. In general the more productive the individual, the higher the remuneration for their services.
- Productivity is a function of the experience, education,

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[7] Abbejean Kehler is acknowledged for her significant contribution to this section.

skills, motivation, general level of physical and mental health, attitudes, talents and other abilities of the individual.

- The level and quality of education possessed by the individual has a direct bearing on the work opportunities for which s/he is qualified and which will be offered.
- Any individual's standard of living is a function of his/her ability to market their skills (in the broadest sense of marketing) in a competitive labor and employment marketplace.
- Employers seek employees who are best able to demonstrate and perform tasks within a set of "workplace cultural norms" (e.g., arriving on time; being ready to work; being reasonably freed from personal distractions and other outside activities, recognizing the contribution they make to the overall output; realizing the importance of competitiveness and profitability of the enterprise; being honest; and focusing on the tasks required to meet supervisors' approval).
- Market-place dynamics are already in place, such that if the employee does not contribute more to the value of the output of the organization than that employee costs in salary and benefits, then it is no longer in the best interest of the employer to extend employment.
- Private enterprise employers are profit seeking. Without a return on the investment for the business, in time, they will no longer be able to remain in business.

Of critical importance is an understanding of individuals and their role in the economic activity of work. The following list of assumptions is intended to contribute to such understanding.

- Individuals are rational decision-makers.
- People make choices relative to work based upon a set of motivating factors. Not choosing work is also a choice, which results in consequences that may or may not be anticipated by the individual.
- The resultant trade-off between work and non-work (leisure) is a part of each work-related choice. By engaging in work, an individual relinquishes time and energy, both of which have value.
- Generally, individuals are willing to work more hours as the income from those hours increases. However, some individuals choose fewer hours of work and the resultant income loss in order to devote more time to family and leisure pursuits.
- The value an individual places on a particular combination of work and leisure is subject to a cornucopia of factors such as past experiences, relationships, responsibilities, family obligations, motivations, and interests.
- Every individual experiences a limitation of choices based on skills, attitude, health, stamina, internalized or externalized motivations, aptitude, self esteem, and public or social pressure.
- Not all choice alternatives or combination of alternatives are agreeable or pleasurable. Typically, however, when an individual spends energies and resources in work, s/he receives income. With this income, the individual may choose to improve his/her standard of living by consuming additional goods and services.
- Work decisions are essentially an exchange. The exchange may occur between an individual and another individual or an individual and an employer. Of course, an individual may also be self-employed.

- Activities that improve the knowledge, skills, talent, education, opportunities, and personal attributes increase the likelihood of a rising standard of living.

The workplace is changing as the industrialized economy shifts to an information and service base. Improvements in communications and transportation systems, the downfall of Communism and resultant increasing numbers of nations and people involved with Capitalism, the aging of the people of the world and other demographic shifts, and the explosion of technology advancements are resulting in an increasingly-changing employment picture (Thurow, 1996). For example, workers no longer have to be in a specific place at a specific time to accomplish work objectives. Indeed, individuals now in work settings, and those entering, are facing radically reduced expectations with regard to stability of work life as well as the unpredictability of employment options.

Each individual must become responsible for the accumulation of knowledge and skills in anticipation of workplace changes. Although it remains unclear how employment trends will work their way through the economy, some have predicted a shorter work week, shifts to information-based technology-oriented jobs, and greater employment in the non-profit sectors of the economy. Individuals must assume the responsibility for staying on top of these trends in order to provide best for the economic security of themselves and their families.

Discussion Platforms for School-to-Work in Preservice Teacher Education

Relationship of School-to-Work and State Curriculum Models[8]

The requirements of federal and state legislative mandates are broad and more demanding than ever before. These sweeping mandates for reform issue a clarion call for making connections between and among federal and state initiatives to create a seamless curriculum which truly prepares students to be productive citizens. A body of research on effective schools has informed us that students learn best when they can actively apply and evaluate their learning using real world problems. The school- and work-based connections elaborated by STW provide strong opportunities for practitioners and preservice educators to align the Ohio Model Curriculum and the learning outcomes of the Ohio Proficiency Test with these real world programs.

The Ohio Model takes into consideration both explicit and implicit curriculum components. According to Appendix C, Explicit Curriculum consists of Content and Process. Content elements are literacy, numeracy, communications, citizenship and inquiry. Process elements are: critical thinking, creative thinking, problem solving, decision making and scientific method. It has been suggested that this listing is not complete and that at least one other element be added: demonstrated relevance of learning. The Implicit Curriculum elements are compliance, competition, cooperation, reward systems (for successes and failures), and social etiquette (e.g., punctuality, courtesy, and reliability). Again, it has been suggested that this listing is not complete and that at least one other element be added: prepared

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[8] Sharon Yates is acknowledged for her significant contribution to this section.

for integrating to workplace (e.g., positive work ethic and productivity)

The Ohio Model Curriculum has been approved as a necessary component of preservice teacher education programs; now, the alignment of the model curriculum with P-14 programs focused upon workforce development is critical. Our complex technological society requires that high school and college graduates reach levels of skill and competence that have not previously been demanded. Blue-collar workers will only comprise 10% of the workforce in 2000. "Knowledge work" jobs (Schlechty, 1997) require mastery of advanced content and higher order thinking skills previously slated for college-bound tracks. The 1991 report, *What Work Requires of Schools: A SCANS Report for America 2000*, identified foundation and basic competencies that have become a frame of reference for workplace skills. The transdisciplinary integration of the SCANS foundation and basic competencies into the Ohio Model Curriculum will assist students in making a successful transition into the world of work.

These competencies can be divided into two categories, Description of General Competencies and Description of Interpersonal Competencies. The General Competencies include: information processing, computer usage, technology usage, resourcing, oral communication, written communication, reading, mathematics usage, and systems usage. The Interpersonal Competencies include: leadership, group dynamics, problem solving, responsibility, self-confidence, self-management, sociability, integrity, and personal identification. The SCANS foundation and basic competencies can be logically aligned with the Ohio Model Curriculum and the learning outcomes for the Ohio Proficiency Test. An example follows:

The following is a learning outcome for the ninth grade Ohio Proficiency Test

> Given everyday/functional reading materials, the student will identify, locate, and use information in items regarding
>
> 21 directions of two or more steps
> 22 the selection and use of appropriate reference sources and illustrative materials
> a Examples of reference sources/illustrative materials would be dictionary, encyclopedia, almanac, atlas, phone book, card catalog, periodical/newspaper, schedule, table of contents, and index
> b Examples of skills/processes would be using alphabetical order, skimming and scanning, reading charts, tables, diagrams, graphs, maps, labels, and signs
> 23 the meaning of vocabulary words used on an application form
> 24 the use of propaganda

A SCANS Foundation/Basic Skill that includes the same process is reading

> Locates, understands, and interprets written information in prose and documents-including manuals, graphs, and schedules--to perform tasks; learns from text by determining the main idea or essential message; identifies relevant details, facts, and specifications; infers or locates the meaning of unknown or technical vocabulary; and judges the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers.

It is important that all prospective and practicing educators be knowledgeable of both the learning outcomes in the Ohio Model Curriculum, which embed National Standards, and the SCANS skills. Good preparation and implementation of engaged learning focused on these outcomes can contribute toward P-14 children becoming both responsible citizens and productive members of the workforce.

Relationship of School-to-Work and Ohio Teacher Education and Licensure Standards[9]

In addition to relating STW to state curriculum models, the relationship between school-to-work and the 1998 Ohio Teacher Education and Licensure Standards needs to be explored when designing and adapting curriculum for preservice teacher education programs to integrate STW in a systematic fashion. Within a STW system, the performance of teachers is different than when operating without such a system in place. Since school-to-work actually relates to all of the 10 performance areas in Ohio's licensure standards, STW must be considered when developing teacher education curriculum intended to prepare preservice teachers so that the teacher

- has a thorough understanding and knowledge of subject matter and uses such knowledge to create effective learning experiences for students,
- understands how students learn and develop, and creates opportunities for each student's academic development,
- understands differences in how students learn and provides instruction to accommodate such diversity,
- plans instruction based on knowledge of subject matter, of students, and of curriculum goals and models,

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[9] Robert G. Berns is acknowledged for his significant contribution to this section.

- uses a variety of instructional strategies that encourage each student to develop critical-thinking and problem-solving skills,
- creates a learning environment that encourages active, engaged learning; positive interaction; and self-motivation for all students,
- effectively communicates in the classroom by using a variety of communication skills, including verbal and nonverbal techniques, technology, and media,
- effectively uses formal and informal assessment strategies to evaluate student progress,
- analyzes past experience and pursues professional development opportunities to improve performance, and
- works with parents/family members, school colleagues, and community members to support student learning and development.

A Model for Integrating School-to-Work into Preservice Teacher Education Programs in Ohio[10]

Integrating school-to-work concepts, principles, and practices throughout all preservice teacher education programs in all colleges and universities in Ohio is a formidable task. College and university faculties, including those involved with the preparation of new teachers, generally have not been involved with the STW initiative to date. In fact, the "School-to-Work Integration Project: Preservice Teacher Education Framework" is the first project of its kind in Ohio, and, as far as is known, in the country. Part of the Framework, thus, is to be a proposal for spreading the initiative throughout the state.

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[10] Dora L. Bailey and Robert G. Berns are acknowledged for their significant contributions to this section.

Integration will not occur in preservice teacher education programs without knowledgeable, supportive faculty. The professional development of faculty involved with these programs thus takes on a critical role in the process. Conducting a professional development conference, an idea first introduced by Dora Bailey in the very early stages of the project, soon became a major developmental effort of the project's work team. The resultant three-day conference that was held at Bowling Green State University in July, 1997, was the first organized professional development activity of its kind. The prototype was replicated in 1998, co-hosted by Kent State University and Youngstown State University. The conferences were evaluated so that they could serve as a platform for discussion at other universities and colleges.

During the 1997 conference, two professors of education from all public universities represented in the State University Education Deans (SUED) organization were invited to the conference. During the 1998 conference, faculty from private colleges and universities were the focus for invitation. An outline of the three day conference follows.

Integrating School-to-Work into Preservice Teacher Education: A Conference for Professors of Education

Thursday - 10:00 a.m. - 1:00 p.m.
Opening Session and Luncheon

The key note speaker was J. D. Hoye, National Director of School-to-Work. STW regional coordinators, deans, representatives from the STW sponsoring state agencies, and other dignitaries were invited to this opening session and luncheon.

Thursday - 1:00 p.m. - 5:00 p.m.
Learning about School-to-Work

This session was a simulation created by Patricia M. Erickson where participants were asked to see themselves as a part of a Consortium on Schools for the Future that was being asked to learn about innovative systems. The participants were placed in four "subcommittees" with a facilitator/leader, who was a member of the project's work team that planned the conference. The teams wrote questions for J.D. Hoye based on her morning speech. The teams of participants decided what their goals might be as they planned to learn about innovative practices, especially STW. Facilitators took their committees through a simulated work assignment. A large part of the simulation was attendance at two 20-minute mini workshops. The presenters were chosen for their knowledge about innovation in learning practices and/or student participation in work-based learning. Participants had two opportunities to select a mini session to attend.

Thursday Evening - 6:00 p.m. - 9:00 p.m.

Following dinner, a two hour session allowed the participants to review their own work experiences by responding to the "Individual Inventory of Non-teaching Work Experiences," review and select interview questions for the next day's externship, and become aware of the SCANS competencies for successful work lives. Participants were then given their externship assignments for the next day, and questions were answered.

Friday - 8:00 a.m. - 4:00 p.m.

Following "breakfast-on-your-own," participants drove in pairs to work sites within a one-hour driving distance. The

participants interviewed and observed workers in a variety of departments, including management.

Friday Evening - 5:30 p.m. - 8:00 p.m.
Sharing Externships

After a planned dinner, participants engaged in sharing what they learned during their externships. Sharing began by individuals reflecting about their day on a Reflection Sheet. These reflections were the backdrop for Marcia A. Rybczynski's "Creative Reconceptualization" activity where groups played with analogies that could pictorially show what was learned in the externship. After creating the pictorial representation, groups shared and explained their pictures.

Saturday - 8 :00 a.m. - 9:45 a.m.
Breakfast and Connecting STW to Preservice Teacher Education

All participants had breakfast together to foster dialogue about their externship experiences and their experiences with the conference. Then, groups of participants created a Mind Map or WEB centered around "School-to-Work and Its Relationship to Preservice Teacher Preparation." The mind mapping process and model of a mind map were shared first.

Saturday - 10:00 a.m. - 10:15 a.m.
"Sleepy River Hollow: The Dawning of a New Day" Skit

The work team performed a Readers' Theater for the participants. This skit, written by Robert G. Berns, showed a new faculty's enthusiasm for STW in relation to a myriad of fellow faculty reactions. Eventually all faculty came around to consider and value the notion of STW infused somewhere in their classes and the preservice teacher education program.

Saturday - 10:45 a.m. - 11:30 a.m.
Action Planning and Reporting

Groups of participants created a list of ways to begin to infuse School-to-Work into their preservice teacher education programs. This list, or beginning action plan, was guided by a "Force Field Analysis" procedure, developed by Marjorie Ward. Copies of each group's list were distributed to the participants.

Saturday - 11:45 a.m. - 1:30 p.m.
Luncheon: Speaker

Dr. Ernest Savage, Associate Dean of the College of Technology at Bowling Green University, spoke about the importance and need for change and School-to-Work.

After learning about STW through the activities of the conference, the participants were encouraged to create a plan for integrating STW into preservice teacher education programs at their home institutions. Once a college or university begins to integrate school-to-work into their preservice teacher education programs, it is helpful for faculty to have an opportunity to share their progress and learn from each other. Therefore, a plan for such sharing was created and implemented in 1998.

Eight universities were provided funds to plan and implement projects that would move forward the integration of school-to-work into their preservice teacher education programs. The principal investigators of these eight projects met monthly to share plans for their projects, ideas generated during the course of their projects, and information they had learned during their projects. The names of the principal investigators are listed on the inside front cover of this document.

Strategies for Integrating School-to-Work into Teacher Education Programs

Although every college and university will integrate STW into their preservice teacher education programs in their own ways, the following strategies were discussed by the work team and might prove helpful in the process:

- Integrate STW throughout a preservice teacher education program and within specified courses, clinical opportunities, and field experiences including early experiences and student teaching.
- Provide teacher education students with experiences in relevant workplace settings representing a variety of relevant career clusters and pathways. They should discover, through observation, actual experiences, and interviewing:
  - how SCANS competencies are applied in the workplace,
  - how academic content knowledge and skills are applied in the workplace,
  - how workplace problems can serve as a basis for subject matter content, and
  - how important positive attitudes and work ethics are for success in the workplace.
- Provide a vehicle for teacher education students to learn STW concepts, principles, and practices from an interdisciplinary approach.
- Provide teacher education students with a variety of suggestions for motivating their future students, including showing relationships between content being learned and careers and the workplace.

- Role model STW concepts, principles and practices within the teacher education program by building and using partnerships.

Barriers/Issues and Solutions

The implementation of any new initiative, philosophy, or strategy takes time, energy, and resources. A few of the barriers that will need to be overcome for successful integration along with possible solutions include the following:

- *Lack of knowledge and support by faculty.* Conferences will help educate faculty and gain their support. Distributing literature about STW and organizing a discussion group over the Internet would assist faculty to continue to learn more about STW techniques and methodologies.
- *No room in a student's teacher education program requirements.* STW can be integrated into existing courses, clinical opportunities, and field experiences. New models need to be continually implemented, shared and rewarded. Also preservice teachers should be queried about the effectiveness and usefulness of these approaches.
- *Lack of resources.* The STW Workforce Development Clearinghouse allows for the identification of relevant resources (www.stwclearinghouse.org/). Also, existing ERIC Clearinghouses can be used for finding resources. Publishers are gradually producing products that can be used by teachers and preservice for STW integration.
- *Lack of recognition for faculty involvement in STW.* Ohio's State University Education Deans (SUED) organization has supported the integration of STW into

preservice teacher education programs by co-sponsoring the Preservice Teacher Education Framework project. This support has also served to encourage faculty involvement in this initiative. Additional methods for involving administrators at colleges and universities in STW activities would also contribute to faculty involvement. Encouraging administrators to offer recognition and rewards to faculty involved with this integration effort would be yet another means of demonstrating support for the initiative, especially in the areas of promotion, tenure, and merit considerations.

The leaders of the STW initiative should approach administrators of colleges and universities and encourage them to offer recognition and rewards to faculty involved with the integration of STW into their teacher education curriculum. Positive impact of STW involvement on promotion, tenure, and merit decisions would provide strong incentive to faculty.

Outcomes for Preservice Teacher Education Programs Related to School-to-Work[11]

The integration of STW into preservice teacher education programs is intended to result in outcomes such as the following. The preservice teacher will:

- Explain school-to-work concepts, principles, and practices.
- Identify knowledge and skills necessary for success in the

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[11]Robert G. Berns is acknowledged for his significant contribution to this section.

workplace (e.g., SCANS).

- Help children develop positive attitudes toward work.
- Assist parents to see connection between school, subjects, and workplace.
- Analyze how the concept of work presents itself in school.
- Analyze the connections between work and culture.
- Identify purposes for learning and utilizing academic subjects (e.g., writing, reading, math, and science) in a variety of work settings.
- Apply knowledge and skills from multiple disciplines to work environments and tasks.
- Apply STW concepts in such a way that it is seamless within the curriculum.
- Demonstrate the ability to map cross-discipline content and develop content for integration.
- Identify resources for classroom use with children when applying STW concepts, principles, and practices.
- Design lessons that will include learning in a real world context
- Write learning objectives that apply STW concepts and principles.
- Use a variety of approaches to apply school-to-work concepts and principles.
- Use authentic assessment strategies to assess relevant student achievement.

Conclusion

The National School-to-Work initiative has been funded on the P-14 level with Ohio recognizing the necessity of educating college and university faculty for simultaneous change. Professional development of educators is an important link in advancing the STW

initiative, which addresses the need to prepare tomorrow's workers for performance in future work settings.

The speed with which colleges and universities can integrate STW in their preservice teacher education programs will be dependent upon the support gathered by faculty as they complete conferences designed to educate them about the STW initiative and its place in preservice teacher education programs. With college and university funding generally declining across the state of Ohio, and college and university faculty assuming expanding roles and functions, the time available for professional development and resultant curriculum and course modifications becomes more limited. Funds provide impetus and support for faculty to elevate STW as a priority in their professional activities.

Significant progress has been made in the integration of school-to-work into preservice teacher education programs across the state. Professional development activities for Education faculty at publicly and privately funded colleges and universities have resulted in an awareness by faculty of school-to-work and the need to prepare preservice teachers to teach effectively in a school-to-work system. Projects at eight universities have moved forward the integration process at those institutions. Plans call for additional projects at those institutions as well as up to 11 other colleges and universities during 1999. Sharing among faculty across universities has been, and will continue to be, an important approach to providing a vehicle for gathering information learned at the institutions that can be used to move the process further in a more efficient manner at all of the universities.

Also during 1999, material will be developed and packaged for use in orienting faculty and administrators at colleges and universities

on STW and the integration of STW into preservice teacher education.

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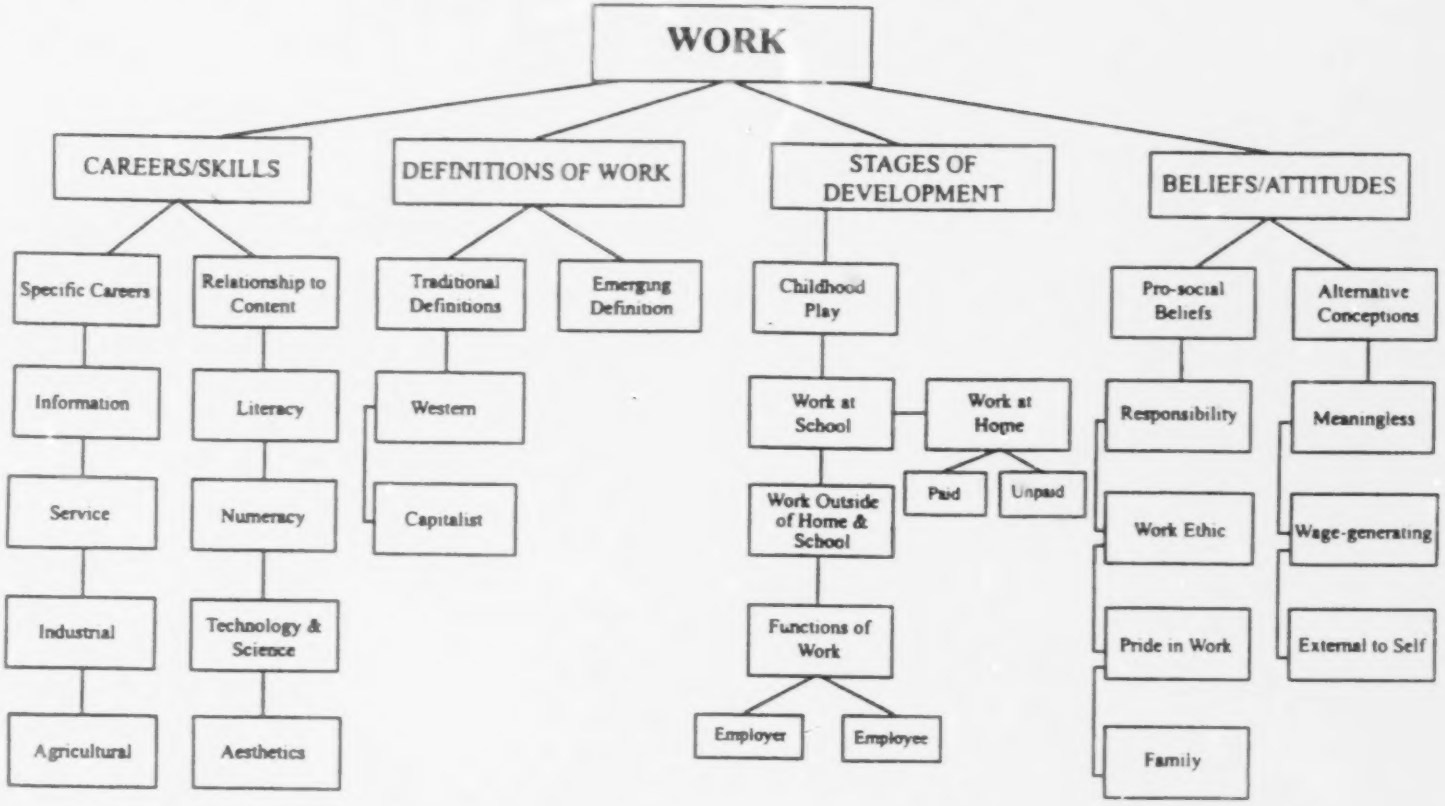
Educate the professor, and you will educate the teachers and their students.

Appendix A[12]



[12]Leigh Chiarelott is acknowledged for his significant contribution to Appendix A.

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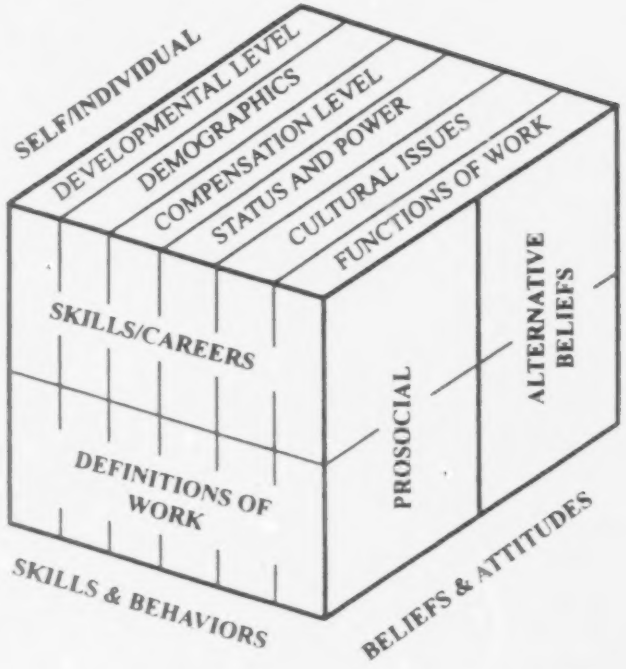
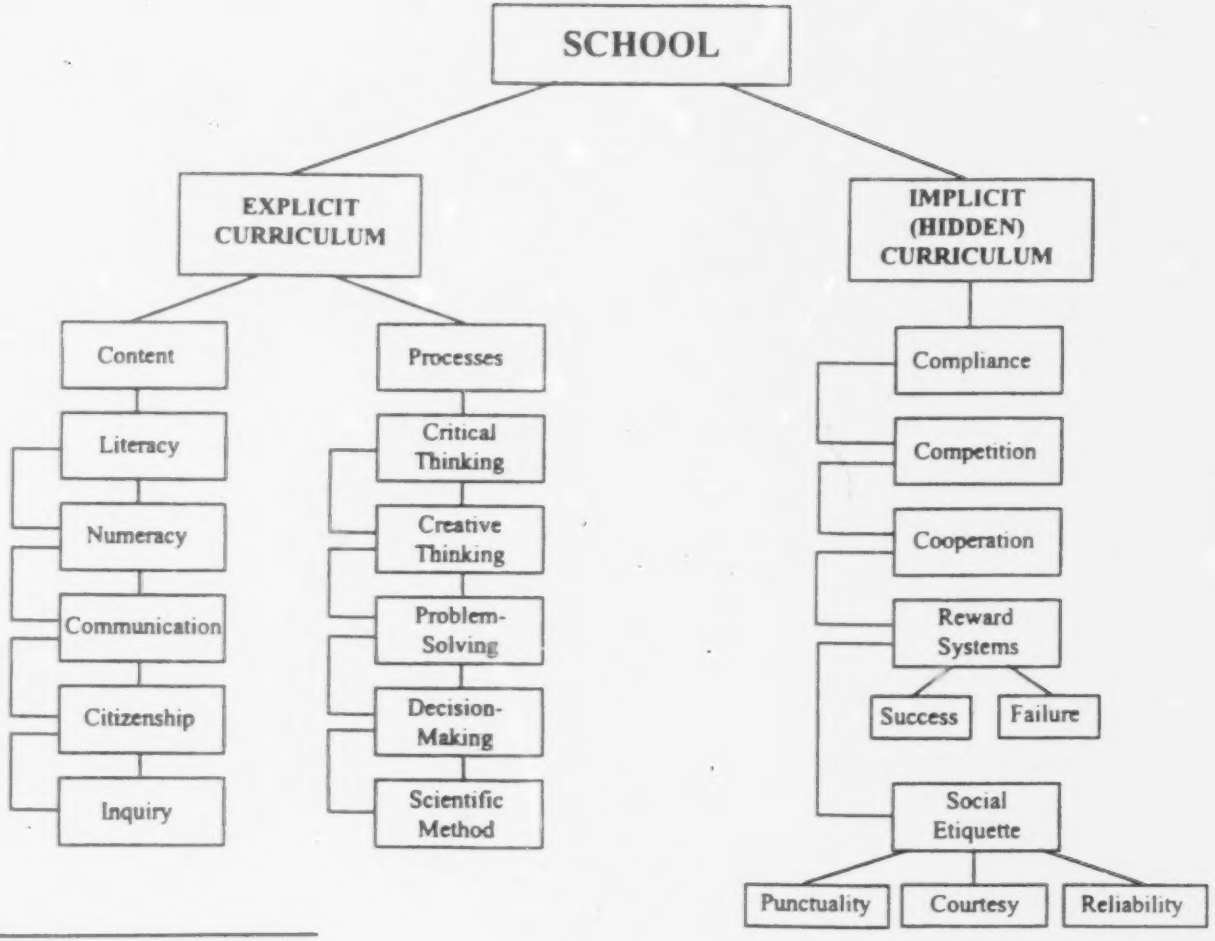
Appendix B[13]

THE DIMENSIONS OF WORK



[13] Darcy Haag Granello is acknowledged for her significant contribution to Appendix B.

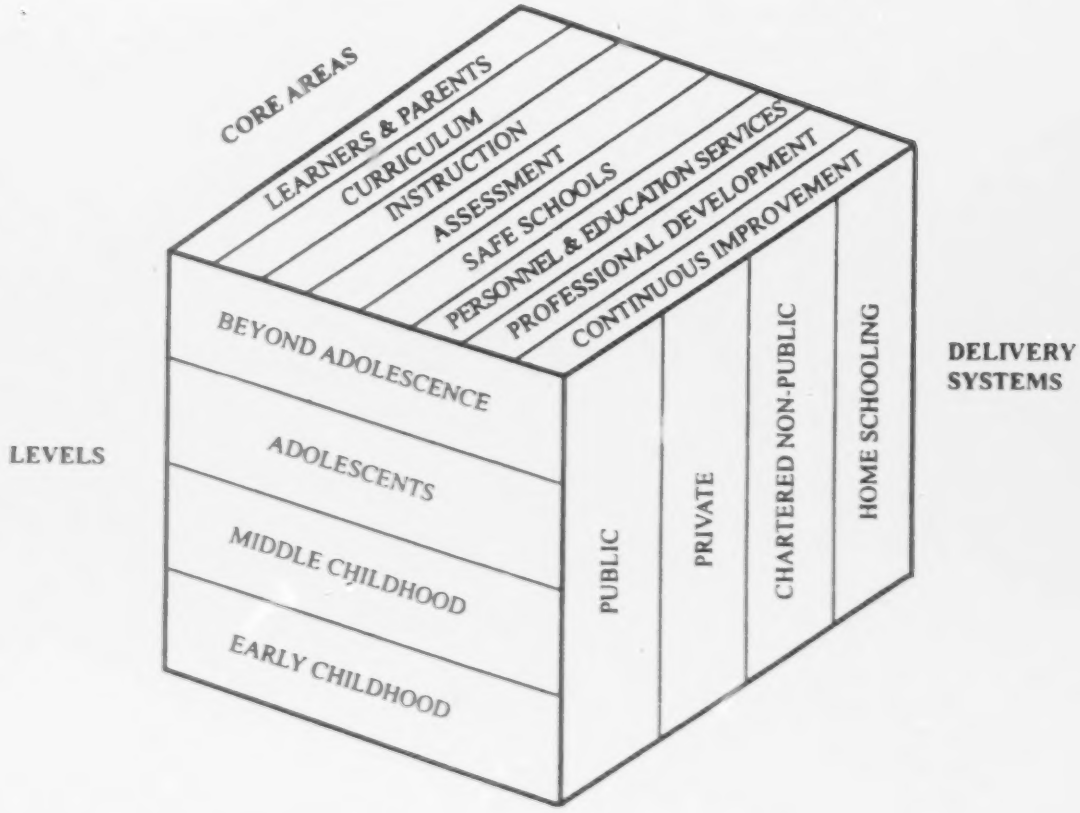
Appendix C[14]



[14] Leigh Chiarelott is acknowledged for his significant contribution to Appendix C.

Appendix D[15]

THE DIMENSIONS OF SCHOOL



[15] Darcy Haag Granello is acknowledged for her significant contribution to Appendix D.

Appendix E

DESCRIPTION OF GENERAL COMPETENCIES[16]

Information Processing

- Identifies the purpose for information search and develops an effective plan for the collection of relevant information using appropriate resources.
- Locates, selects, and evaluates information in an organized manner in order to create clear and concise oral, visual, or written communication.

Computer Usage

- Demonstrates proficiency in the use of computer technology by selecting appropriate programs to fit the needs of the desired outcome.
- Operates, manipulates and integrates word processing, graphics, spreadsheet and data base software programs for written communication and graphic representation.

Technology Usage

- Selects, sets up, and uses a variety of technological tools.
- Identifies and analyzes situations to circumvent, troubleshoot, and solve problems in the respective technologies used.

Resourcing

- Plans and utilizes time, money, materials, facilities, and human resources.
- Selects appropriate human and material resources.
- Allocates human and material resources.

Oral Communication

- Organizes ideas and communicates with clarity oral messages matched to the audience and situation.
- Demonstrates listening with congruent feedback to verbal and non verbal messages.

Written Communication

- Employs the writing process to produce effective written communication for an intended audience.
- Composes, creates, and records information completely and accurately to communicate thoughts, information and messages.

Reading

- Interprets the meaning of written communication.
- Identifies and explains the main idea and relevant details, ascertains the meaning of unknown vocabulary.
- Judges the accuracy, appropriateness, and plausibility of written communication.

Mathematics Usage

- Approaches practical problems by choosing appropriately from a variety of mathematical techniques and uses data to construct logical explanations for real world situations.
- Expresses mathematical concepts orally and in writing and understands the role of chance in the occurrence and prediction of events.

Systems Usage

- Explains how current social, organizational, and technological systems work and operates effectively within them.
- Explains how a system's structures relate to goals; responds to the demands of the system, and functions within the formal and informal social and organizational systems.

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[16] Sandra G. Pritz is acknowledged for reframing the SCANS competencies for use with teachers the Department of Defense Dependents Schools.

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Appendix E (continued)

DESCRIPTION OF INTERPERSONAL COMPETENCIES

Leadership

- Demonstrates competencies in leadership through the organization and coordination of group and individual tasks.
- Applies effective communication and listening skills to persuade and motivate others in order to accomplish goals.
- Demonstrates a sensitivity toward individual ideas and beliefs and will generate credibility through competence and integrity.

Group Dynamics

- Organizes tasks and assumes different responsibilities as a contributing group member.
- Through positive interaction with respect for group diversity, negotiates, compromises, and reaches consensus when working toward a common goal.
- Emphasizes process rather than product.

Problem Solving

- Recognizes and defines the problem generates alternative solutions, chooses the best alternative, and implements a plan of action.
- Considers the consequences of these actions and makes informed decisions.

Responsibility

- Initiates and or completes tasks consistently, and exhibits regular and timely attendance and is prepared to work and learn.
- Demonstrates a high level of effort and perseverance towards reaching goals.
- Takes care of materials and equipment, respects the property of others and completes tasks on time.

Self Confidence

- Believes in own self worth and maintains a positive view of self.
- Demonstrates knowledge of own personal strengths and limitations, displays initiative, is aware of impact on others, and responds to constructive criticism.

Self Management

- Sets realistic goals, organizes resources, prioritizes tasks, and monitors own progress.
- Evaluates information and motivates self in assessing progress toward completion of goals.

Sociability

- Demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and on-going group settings, and responds as the situation requires.
- Cooperates as a team member, negotiates to arrive at a decision, demonstrates positive ways of solving conflicts, and relates to diverse groups.

Integrity

- Consistently chooses an ethical course of action and displays a pattern of trustworthy behavior.
- Respects the rights and property of others, accepts responsibility for own actions, and understands the impact of abiding by or breaking the rules and regulations.

Personal Identification

- Demonstrates the ability to produce a personal portfolio of major achievements and accomplishments and has successfully produced a resume for employment purposes.

PowerPoint Presentations

Contextual Learning: Connecting School-Life with Work-Life
Crosswalk: Connecting School-life with Work-life
SCANS: The Secretary's Commission on Achieving Necessary Skills

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July 2000

PowerPoint Presentations

Three PowerPoint Presentations have been created for your use. Although we have made suggestions as to when to use each, you may find that each of these presentations are useful in whole or in part in your class teaching as well as in educating your colleagues and teachers. Each of the presentations is animated so that pictures and text appear as the presenter clicks the mouse. Each has notes attached that include background knowledge and the perspective of the authors.

1) Contextual Learning: Connecting School-Life with Work-Life PPP. Much is considered in this presentation. The presentation gets viewers to consider some interesting questions such as: what is school as different from work? Who goes to school and who decides this? How long does schooling last? When does schooling happen? Where does schooling take place? If schooling happens anywhere besides school, is it still schooling? Why do we need school? We can ask the same questions of work. Just exactly what is work? Who gets to define it? Just who works? Just when does work occur? And where? And of course why do we need to work? What happens when many people do not work? This presentation helps people consider contextualizing learning. Children need to link what they are leaning to the real work, the real world of work. Children need to see the real world and personal relevancy of what they are learning. We are all beginning to see a life long relationship with school and work. Children are employed in the work of school and employed people see that they must continue to learn. The faculty of colleges and universities throughout the U.S. must play a significant role in producing teachers who are innovators and who connect with the community, including parents of their students, business people, and community leaders. The information provided in this presentation and in the end suggestions is that teacher education programs need to integrate contextual learning throughout, within specific courses, clinicals, and field experiences and that the

programs need to provide preservice teachers with experiences in a variety of relevant workplace settings.

2) Crosswalk: Connecting School-life with Work-life. This presentation shows the relationship among the School-to-Work Preservice Teacher Education Programs Framework of Ohio, the Ohio Licensure Standards, the assessment criteria in Praxis III, and the National Board for Professional Teaching Standards. The presentation highlights contextual learning. It shows the corresponding vision of all of these documents.

3) SCANS: The Secretary's Commission on Achieving Necessary Skills. There are two components identified by this commission as necessary for people to be successful in the work they choose to do. These were identified because it was thought that employees have problems with knowing that these skills are necessary to their success. Too often employees attribute success to external factors instead of looking to their own intrinsic factors. The foundation skills include: the basic skills of reading, writing, arithmetic, listening, & speaking; the thinking skills of creative thinking, decision making, problem solving, seeing things in the mind's eye, knowing how to learn, & reasoning; and the personal qualities of responsibility, self-esteem, sociability, self-management, & integrity. The competencies that individuals need to consider are how to use resources, information, technology, systems, and others. Further information on each is included in the PPP.

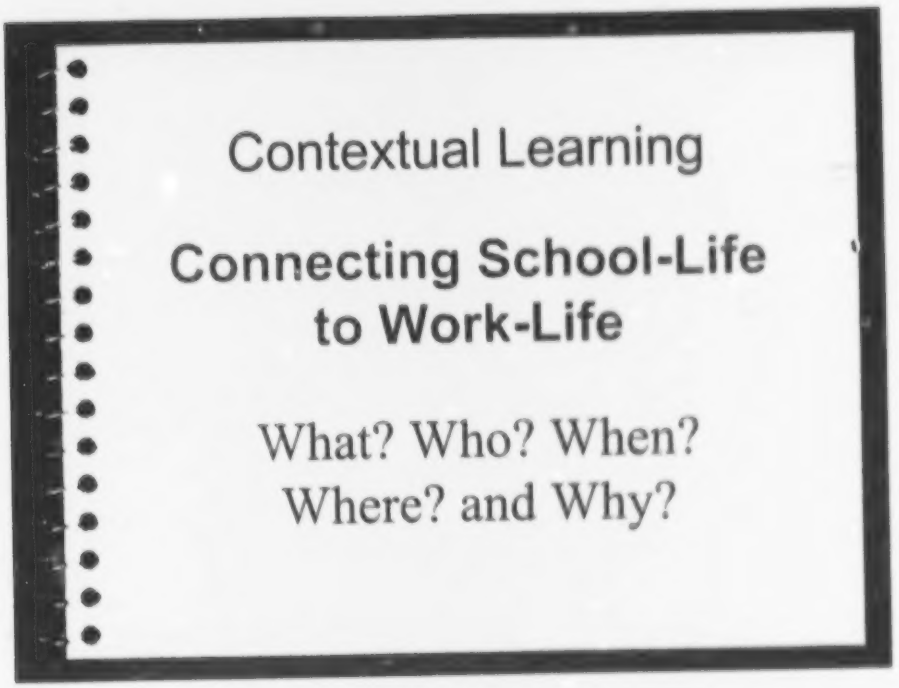
Contextual Learning

Connecting School-Life to Work-Life

What? Who? When? Where? and Why?

Notes for this PowerPoint Presentation
are provided in this section

See the CD-Rom for the electronic version

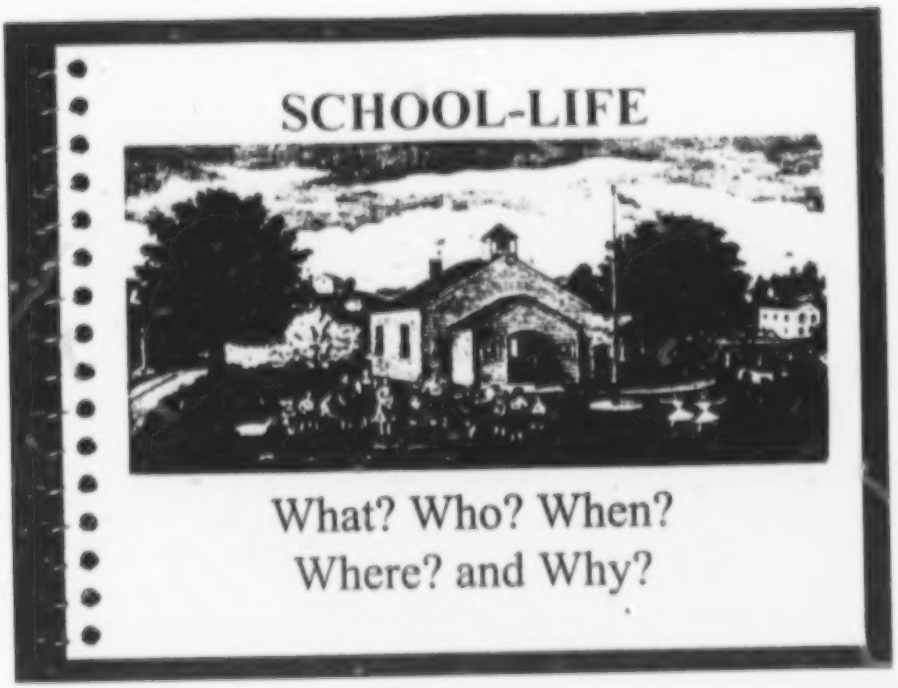


Contextual learning is the concept under consideration.

It is a way to connect school-life and work-life. The intent is for people to obtain from society what they need to live their lives, and to do so in a meaningful and satisfying way (A Framework for Integrating School-to-Work into Preservice Teacher Education programs).

Subconcepts are things like What, Who, When, Where and Why school-to-work.

Opening Slide



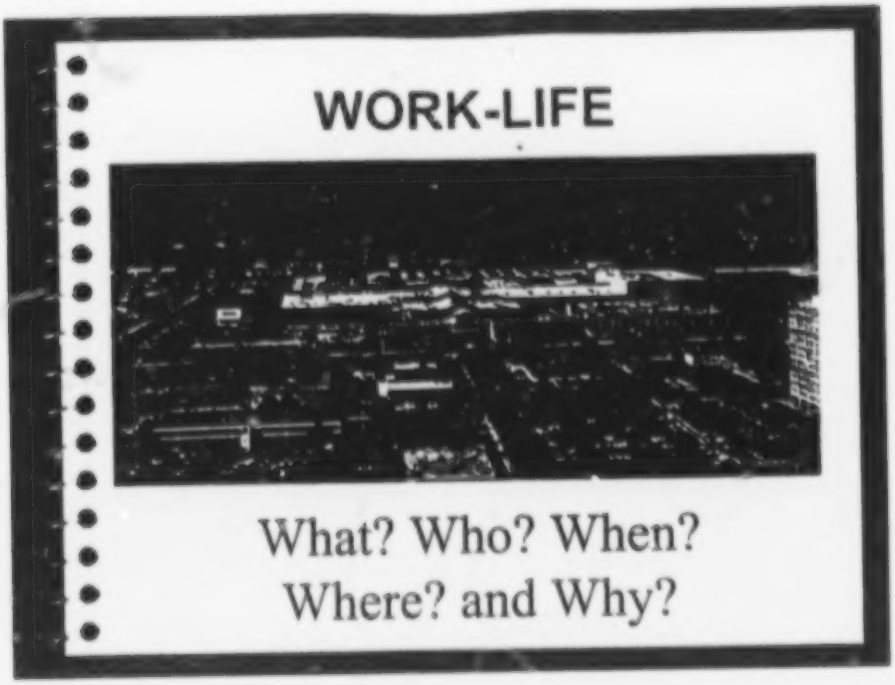
We can ask ourselves some interesting questions about what school is as different from work:

- Who goes to school?
- Who decides?
- How long does schooling last?
- When does schooling happen?
- Where does schooling takes place?
- If it happens anywhere else, is it still schooling?

Of course we can ask ourselves

- Why do we need schooling?

Actually, teachers are critical to the success of any contextual learning. From integrating academic and work-based curricula to building collaborative relationships with employers and other partners, teachers play a key role in the effort to prepare students for further education and work (http://www.stw.ed.gov/factsht/bull0897.htm).



This hospital plant (actually Toledo Hospital) is but one example of work places that can provide contextual learning for children; actually places like this, with such rich context, provide continual learning opportunities for their employees. Lifelong learning is already necessary in today's work world.

Think about the myriad of ways that people employ themselves here.

•What about advertising?

•What about art therapy?

•What else can you think of?

We can ask ourselves some interesting questions about when work begins as divided from school.

•Just exactly what is work?

•Who gets to define it?

•Just who works?

•Just when does work occur? And where?

•Why do we need to work?

•What happens when many people do not work?

Often many of America's young people leave school unequipped with skills they need to perform the jobs of a modern, competitive world economy. They often flounder in the labor market, wasting a decade or more unfulfilled. Employers are having difficulty finding workers who are adequately prepared for today's more demanding jobs. In addition the whole notion of independent and small businesses is becoming more appropriate.

Because children have been traditionally shut off from real live living earning, they don't know how to fit themselves into the earning-of-a-living scheme.

The traditional jobs of the past are unlikely to fit the needs of the world of tomorrow.

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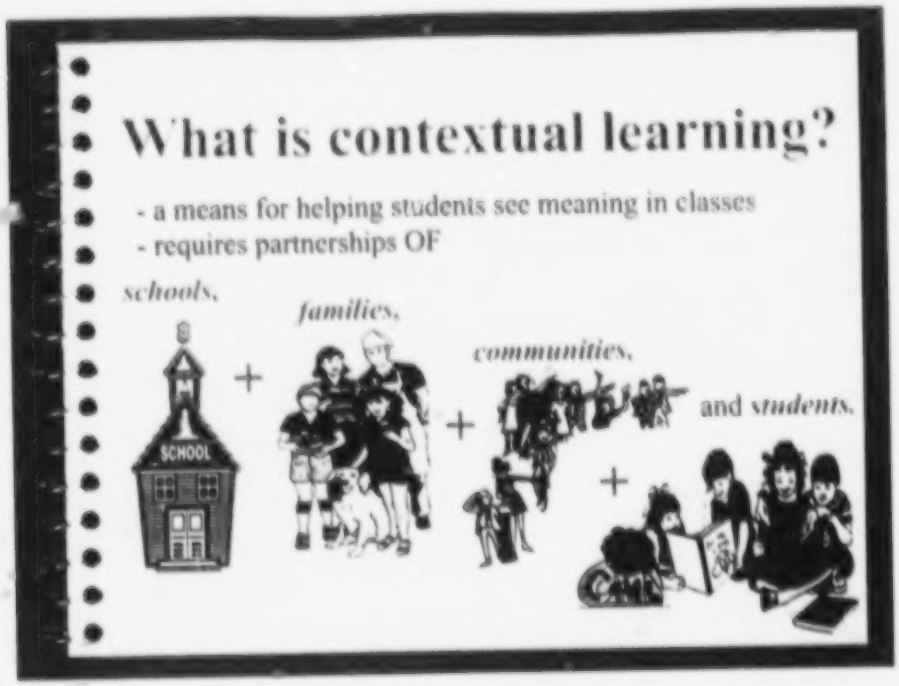
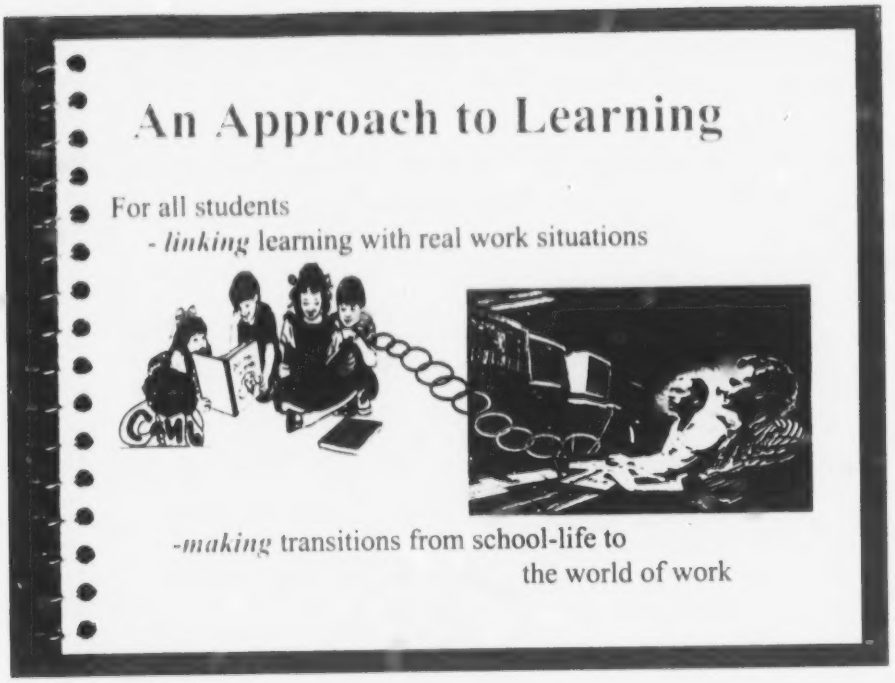


As we enter the 21st century, linking learners with the authentic contexts of the real world is an important part of the legislated requirements. The School-to-Work Opportunities Act (signed by President Clinton on May 4, 1994) has allowed educators and business to investigate, experiment with, and refine all age children's learning in real contexts. It has provided an invitation to all sectors of a community to work together in new ways to meet shared and individual needs. It provided seed money to states and their partners (business, labor, government, education, and community organizations) to bring together efforts in education reform, worker preparation and economic development to help prepare youth for the new and, as of yet to be created, high-wage, high-skill careers of today's global economy. STW challenged schools to build upon the good things they have already done to create this way of learning for all of their students.

When students question teachers about reasons for certain required content and courses, it is because teachers have not helped students see how the content and course fit into their lives and into life in their work-based world. Students also do not see that all of us need to find a place for ourselves in society that the society will value so that they can survive. We need to help students and parents see that emerging societal needs require higher levels of communication, science, mathematical, and technology skills than in the past. Thus, the STW system promoted:

1. A sustained system to integrate academic and career/technical instruction.
2. A classroom with academic instruction correlated with work-based learning.
3. A comprehensive K-12 integration of post-secondary and employment possibilities.
4. An expansion of opportunities for every learner.


An Approach to Learning
For all students
- *linking* learning with real work situations
-*making* transitions from school-life to the world of work

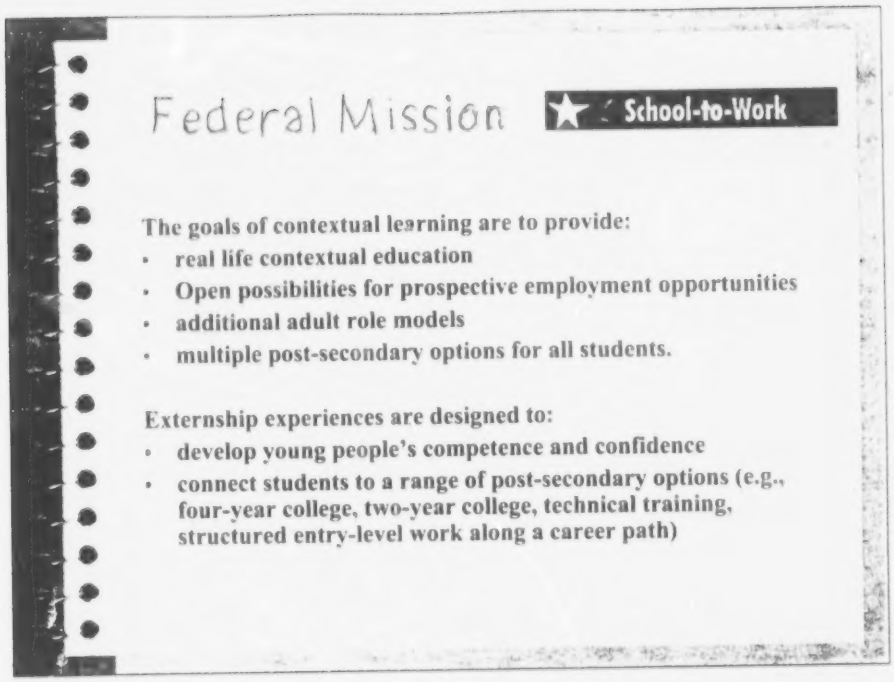
Contextual learning is an integrated approach to learning for ALL students. It is based on the concept that education works best and is most useful for future careers when students learn in and apply what they learn to real-life, real-work situations.

This slide is meant to be busy – as is school and work. This slide works best in a PPP since it is animated. Continue clicking to bring in each animated piece. The elements appear one at a time. Text to go along with these appearances is below.

The very notion of people needing a transition from school-to-work is fading. Parents, teachers, and children are beginning to see children as employed in the work of school. In addition, employed people see that they must continue to learn to remain employed. (www.stw.ed.gov/general/whatis.htm).

1. When does a kid playing at baseball become a baseball player?
2. When does a kid experimenting with looking at samples through a microscope become an adult scientist looking at samples through a microscope?
3. When is practicing a violin a matter of schooling and when is it a matter of working?
4. When is ballet practice play and when is it professional work?
5. When is acting play and when is it serious?

Therefore, what we are going to consider through this presentation is the whole notion of accepting and encouraging people to see and enact a connection between school-life and work-life.


Federal Mission
School-to-Work
The goals of contextual learning are to provide:
• real life contextual education
• Open possibilities for prospective employment opportunities
• additional adult role models
• multiple post-secondary options for all students.
Externship experiences are designed to:
• develop young people's competence and confidence
• connect students to a range of post-secondary options (e.g., four-year college, two-year college, technical training, structured entry-level work along a career path)

Contextual learning has as its basis apprenticeships. However, apprenticeships were primarily used in the trades and only to pass on what was already known. The Federal School-to-Work effort has given this old model a new life. Through externships, school-aged children not only get to learn about what it takes to do existing jobs, but they can consider creating new jobs to meet upcoming needs.

The goals of connecting school-life and work-life are to help children move into a work world that may not look like the work world as we know it. Regardless of how the future work world looks, workers in that world will need certain attitudes and skills. Children need experiences that are designed to develop young people's conceptions of work, competence, confidence, and connections to successful careers and citizenship.

These experiences can connect students to a range of post-secondary options such as four-year college, two-year college, technical training, and structured entry-level work along a career path. These experience can be considered as the beginning of a pursuit of lifelong learning--where in the past young people often had no sense of connection for school and work.

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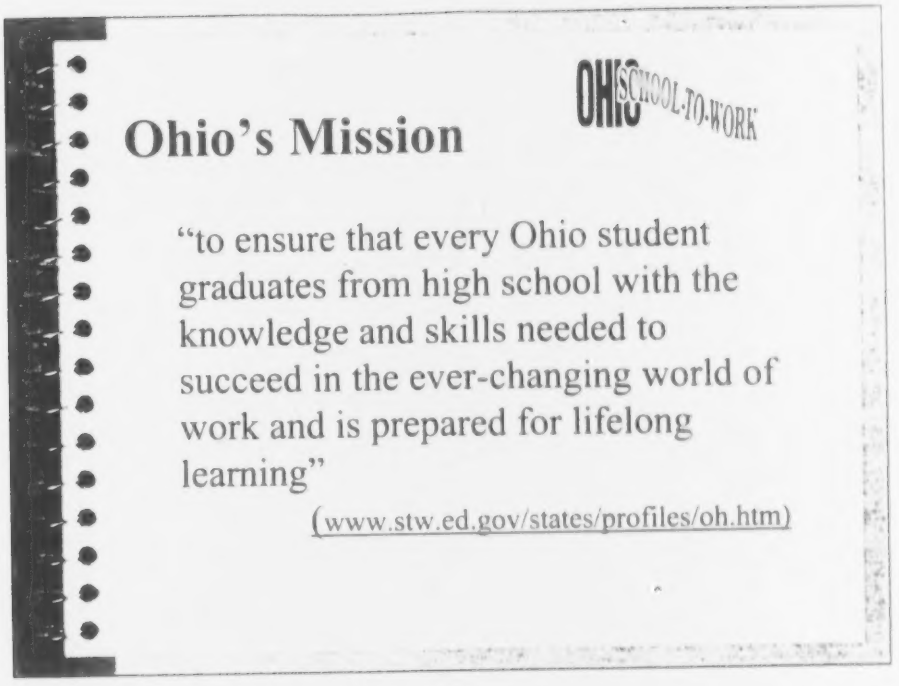
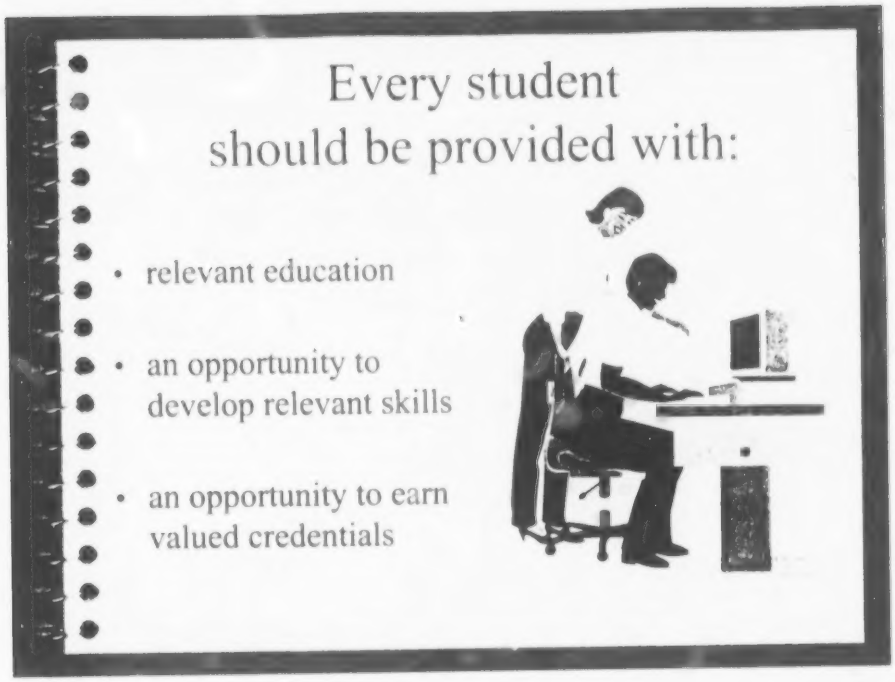

Ohio's Mission
OHIO SCHOOL-TO-WORK
"to ensure that every Ohio student graduates from high school with the knowledge and skills needed to succeed in the ever-changing world of work and is prepared for lifelong learning"
(www.stw.ed.gov/states/profiles/oh.htm)

The mission of Ohio STW is "to ensure that every Ohio student graduates from high school and beyond with the knowledge and skills needed to succeed in the ever-changing world of work and is prepared for lifelong learning" (http://www.stw.edu.gov/states/profiles/oh.htm). The goal is to develop in all children the competencies, confidence, and connections that can lead to successful work lives and responsible participation in the community *(A Framework for Integrating School-to-Work into Preservice Teacher Education in Ohio, 1999)*.

For Ohio's STW system to succeed in preparing today's youth for tomorrow's employment and educational opportunities, education, business and industry, organized labor, community-based organizations, and non-profit organizations, along with both parents and students, must forge partnerships and relationships that enable students to integrate school-focused and work-focused learning and foster real-work applications of discipline-related principles and concepts. Key players in these partnerships are faculty members in Ohio's universities and colleges who are responsible for preparing initial and providing professional development for inservice teachers, counselors, and administrators for the public schools (*A Framework for Integrating School-to-Work into Preservice Teacher Education in Ohio, 1999*).



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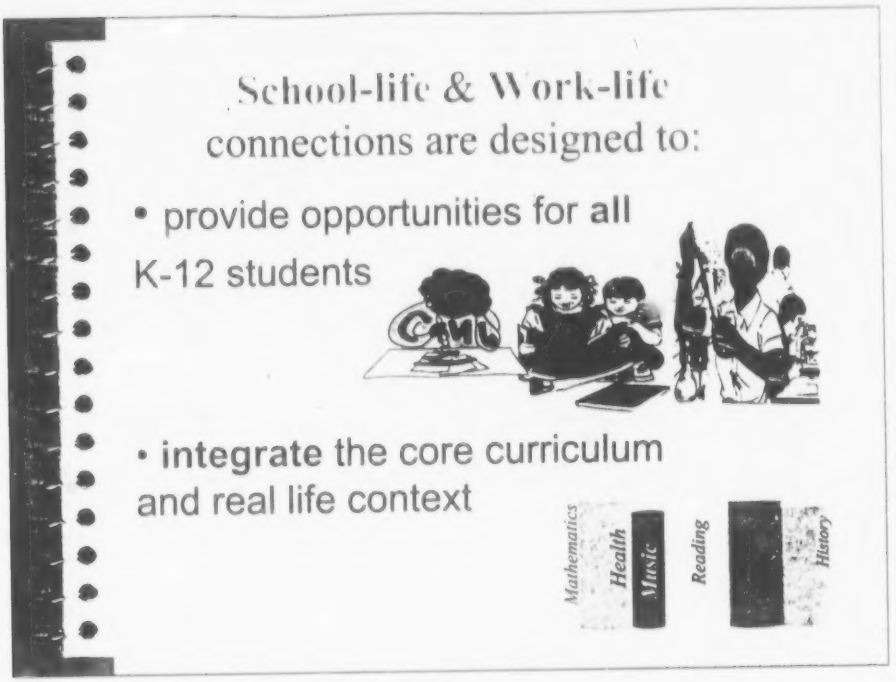
The intent of each state's education system is to provide every American student with:

• relevant education--allowing the students to explore different careers and see which skills are required in their working environment.

• an opportunity to gain skills--obtained from structured training and work-based learning experiences, including necessary skills of a particular career as demonstrated in a working environment.

• an opportunity to earn valued credentials--establishing industry-standard benchmarks and developing education and training standards, which ensure that proper education, is received for each career.

(www.stw.ed.gov/general/whatis.htm)



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Since the STW Act was passed, the National STW Office has identified eight core elements that are essential to building school-to-work systems. These elements help states and local partnerships plan and implement STW as a long-term, systemic reform, rather than a patchwork of educational reforms or training programs. School-to-Work systems:

1. Provide Opportunities for All

A primary objective is to build a system in which all students (regardless of abilities or disabilities) experience a rigorous, integrated sequence of career guidance, coursework, and work-based learning. Every student's learning experience should include activities that connect learning in the classroom with application of that learning beyond the classroom walls, particularly in the workplace. All students in STW systems are expected to satisfy rigorous academic and skill standards. Whether they intend to go on to college or enter the workforce directly out of high schools STW provides students with a purpose and context for learning, the opportunity to explore a variety of career, and the motivation to achieve their goals.

2. Integrate STW Elements into the Core Curriculum

STW elements should be incorporated into the curricula of grades K-12 and post-secondary in progressive steps, building upon a foundation of rigorous academic standards. The school-based and work-based activities in an integrated curriculum provide a context for learning that grows richer and more challenging as the student matures. The progressive steps begin with career awareness at the elementary school level, which consists of activities designed to increase students' awareness of the broad range of occupational opportunities; career exploration at the middle school level, giving students more in-depth exposure to career options; and career exposure in high school, defined as "activities that provide actual work experience that connects classroom learning to work." Post -graduation options include direct entry into further skill training, the workforce, or enrollment in a post-secondary institution.

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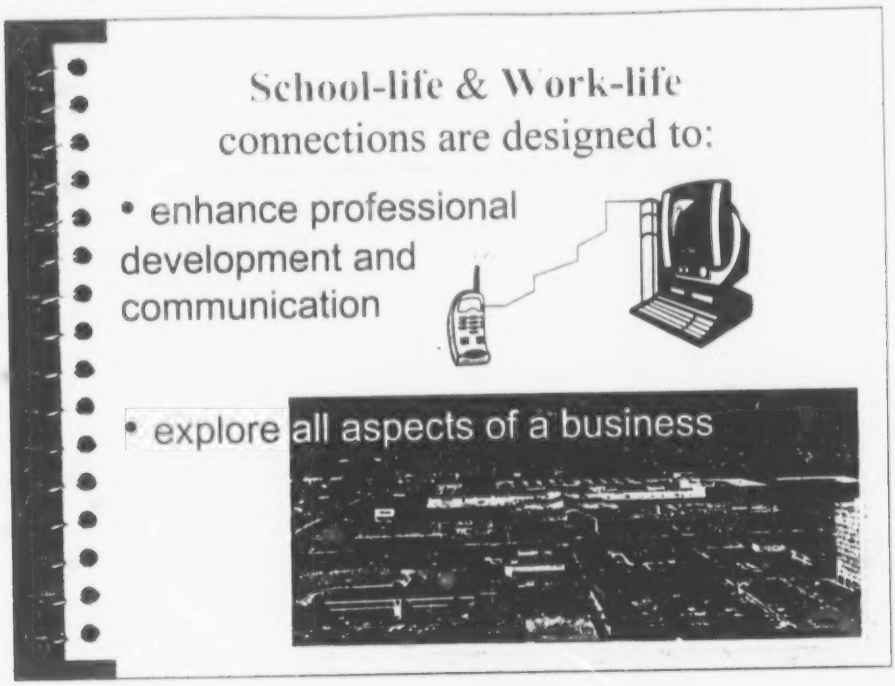
School-life & Work-life
connections are designed to:
• enhance professional development and communication
• explore all aspects of a business

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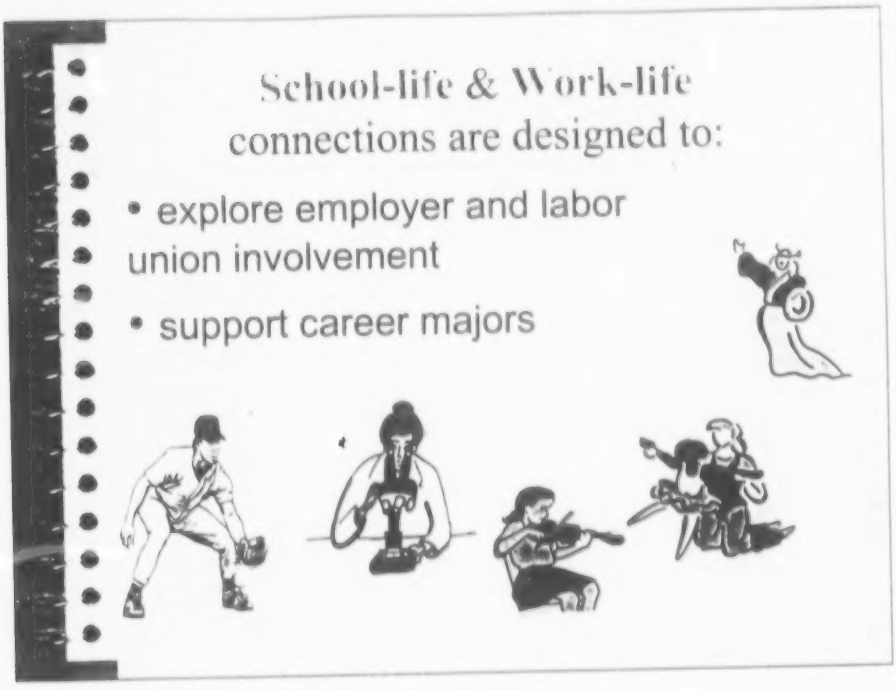
3. Enhance Professional Development and Communication

Contextual learning experiences can bring together a variety of education stakeholders throughout the community. All stakeholders need to communicate & negotiate expectations and needs to each other.To successfully implement externships, field trips, & work site learning experiences, staff development and training are necessary for all partners, including school staff, parents, employers, employees, unions, and community-based organizations. Training activities are intended to develop the knowledge and ability of all stakeholders to work together to integrate curricula and provide students with a variety of work-based and community-based learning experiences that are related to school-based instruction.

4. Explore All Aspects of a Business

Experiences in real-life work environments give students the opportunity to explore a variety of jobs in a business, industry or career cluster. This broad approach to work-based learning ensures that students are exposed to many aspects of a business & industry--including sales and marketing, management and finance, technical skills, labor and community issues, health and safety, and even environmental issues--in an integrated instructional system. Experiences in all aspects of a business & industry can equip students with a greater awareness of career options, transferable skills. It is to be remembered that industry provides much of our nation's economics which, in turn, provides for a nation that can look to its populace's health.


School-life & Work-life
connections are designed to:
• explore employer and labor union involvement
• support career majors

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5. Encourage Employer and Labor Union Involvement

Employer and union involvement is essential for STW initiatives since both directly affect the great majority of employed people in this country. Employers and union leaders can be involved in STW in a number of ways—

- providing leadership and acting as a catalyst for change,
- working with other partners in system planning and curriculum development,
- serving on advisory councils, and
- providing work-based learning opportunities for students and teachers.

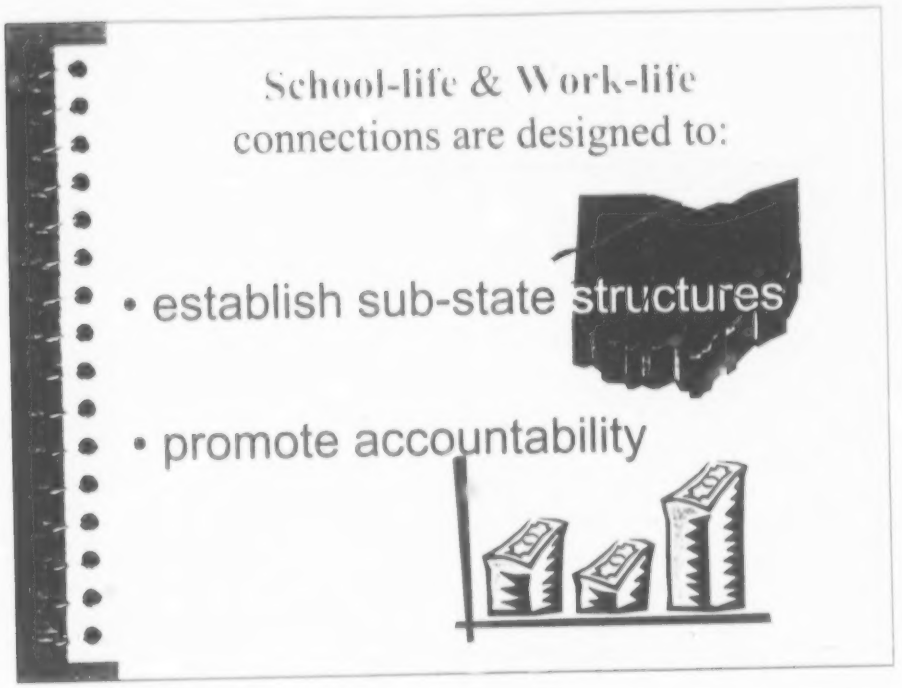
Employers and union leaders may select a level or type of participation that fits both their needs. For example, they can select low intensity activities, such as participating in career awareness days and job-shadowing, or more intensive activities that include mentoring externships, and apprenticeships.

6. Support Career Majors

Career majors structure a student's educational experiences around a broad career theme and provide students a context for learning as well as opportunities to use their experiences in the classroom and the workplace to help determine what they might or might not want to do. In a career major, students can gain a better understanding of the kinds of experiences, skills, education and training they will need to be successful in the career of their choice. Optimally, a career major is a sequenced program of school-based activities and experiential learning that can take place in the workplace or elsewhere. These experiences balance the acquisition of knowledge with the application of that knowledge.

A career major, such as business, health care, or technology, generally coincides with state and local labor-market information to ensure the relevance of student learning to available jobs.

All career majors should incorporate skill standards and academic standards and may require some restructuring of the school day to allow for block scheduling, interdisciplinary instruction, and work-based learning.



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7. Establish Sub-State Structures

•The strength of state efforts towards contextual learning depends, in large part, on how the state establishes its sub-state structure and how it ties in the STW effort.

•The intent is to achieve statewide coverage by building local partnerships and utilizing the sub-state infrastructure, Regional Development Centers & County Service Centers.

•The sub-state structure should help to align reforms in a workforce development and in education at the local level.

•This may include coordination with existing structures and institutions such as one-step career centers, workforce training programs, economic development areas, service delivery areas, counties, and school districts.

8. Promote Accountability

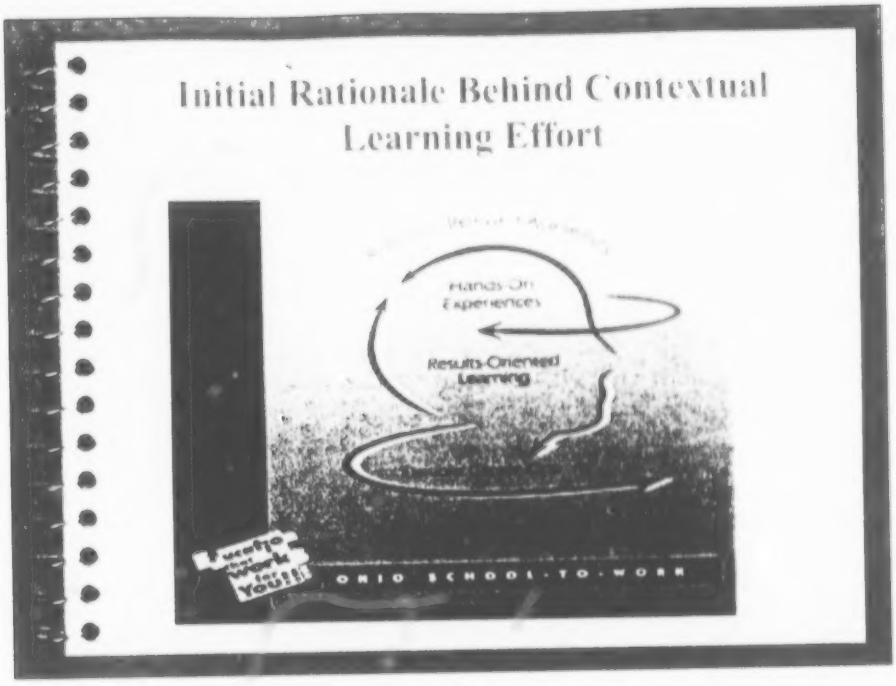
•All partners are individually and jointly accountable for the success of contextual learning.

•STW initiatives help spring school and business into partnership relationships. We need process and outcome evaluations as well as continuous data collection and analysis to help build and track accountability.

•These efforts help stakeholders determine state and local progress in creating systems, identifying promising practices, and measuring student outcomes.

•These can also be used as tools for outlining the nature and extent of participation of stakeholders.

•A key challenge in building accountability is identifying the appropriate information, while putting standards and measurement tools in place that promote the continuous improvement necessary to ensure the success of contextual learning. **(http://www.stw/ed/gov/factsht/bull1197.htm).**



The initial rationale behind contextual learning is grounded in the STW effort. The STW effort was interested in rigorous, relevant academics through hands on experiences. Externship or simulated real-live experiences were at the hub of the STW. Thus leaning was contextualized. As contextualized learning gained favor because it produces such good learning result, the STW language was dropped and "contextual learning' took over.

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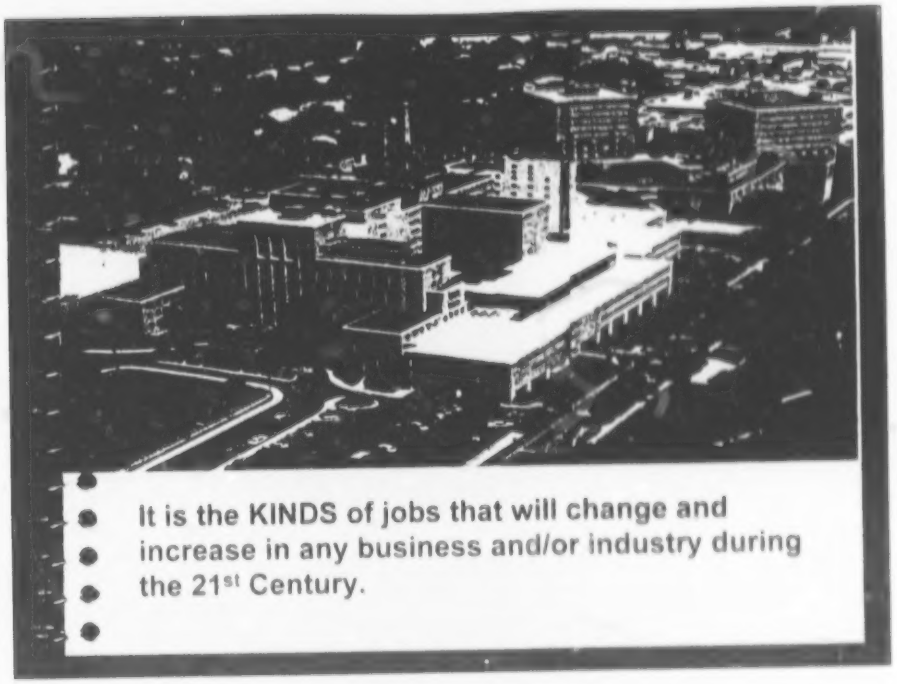


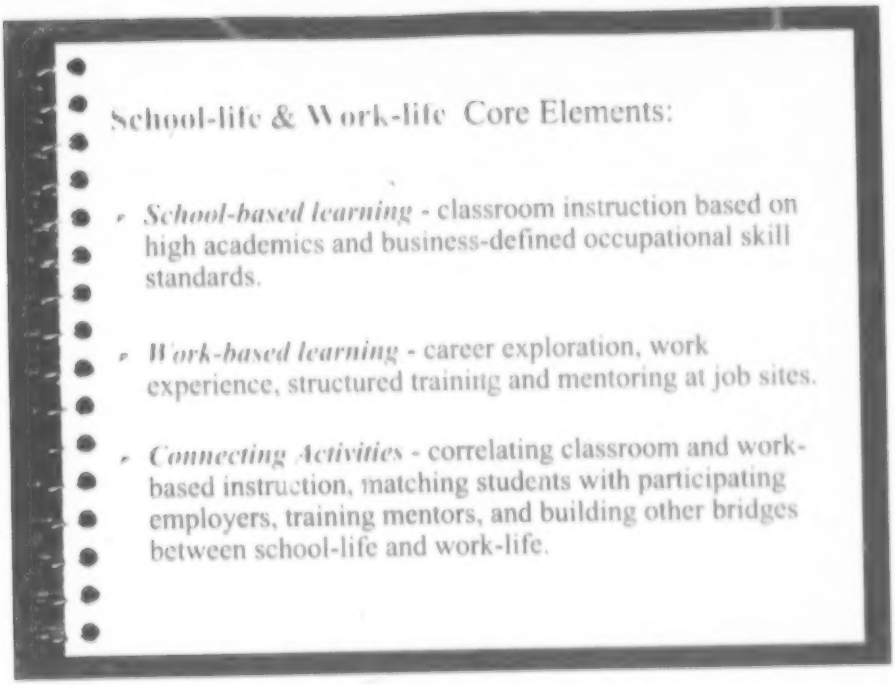
It is the KINDS of jobs that will change and increase in any business and/or industry during the 21st Century.

This is a hospital. Think of the number of people who work in this industry. Any hospital needs to have

- cooks,
- cleaners,
- lab people,
- electrical maintenance,
- personnel managers,
- facility administrators, etc.

These people outnumber the professional doctors and nurses. There are also the

- image builders,
- specialized people for specialized units (such as psychologists),
- care givers and teachers for children patients.


School-life & Work-life Core Elements:
School-based learning - classroom instruction based on high academics and business-defined occupational skill standards.
Work-based learning - career exploration, work experience, structured trainiitg and mentoring at job sites.
Connecting Activities - correlating classroom and work-based instruction, matching students with participating employers, training mentors, and building other bridges between school-life and work-life.

Continue clicking to animate in the lines. This gives the presenter time to have the audience discuss any of these elements

School-based Learning- Classroom instruction is based on high academic and business-defined occupational skill standards. It integrates workforce preparation skills in all curriculum areas, integrates academic and vocational learning, and incorporates instruction in all aspects of work, business & industry.

Work-based Learning- Work-based learning occurs in workplace settings. It provides students with exposure to various aspects of a business through career exploration as well as visits to worksites, and practical experiences such as job shadowing, workplace mentoring, internships, youth apprenticeships and paid employment. The specific activities are designed to be developmentally appropriate.

Connecting Activities- Programs linking and integrating classroom and on-the-job instruction are accomplished through collaborative activities developed by schools, post-secondary institutions, employers, organized labor, and other community stakeholders. These activities include matching students with work-based learning opportunities, providing technical assistance to educators, providing workplace mentors, and the building of other bridges between school-life and work-life.

(www.stw.ed.gov/general/whatis.htm), (http://www.tier.net/stc/whatis.htm)

Related Principles:

- Learning can be enhanced when teachers focus on the child.
  - Applying knowledge and skills to meaningful contexts can increase learning, retention, interest.
- Making connections between school learning and life learning can enhance learning, retention, and interest.
  - Teaching in authentic contexts can be a pervasive, powerful tool in improving children's performance

Continue clicking to animate in the lines. This gives the presenter time to have the audience discuss any of these elements

These are the related teaching and learning principles identified by the faculty and staff from six different universities on the team that wrote, "*A Framework for Integrating School-to-Work into Preservice Teacher Education in Ohio" (1999).*

More Related Principles:

- Connecting new learning to real-life situations can bring relevance to students.
- Engaging in application of learning to real-life situations can bring relevance to students.
- Meeting and working with a wide variety of people can allow students to better understand the concepts of diversity.
- Understanding the diversity of children can lead to understanding that all children can learn.

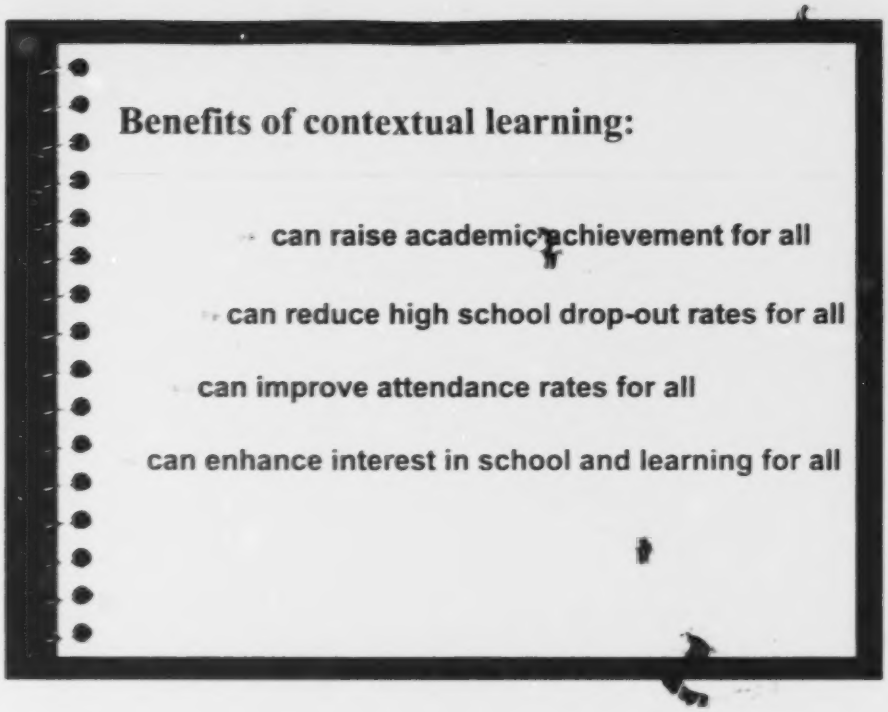
Continue clicking to animate in the lines. This gives the presenter time to have the audience discuss any of these elements

(continuation of benefits from previous slide)

Benefits of Contextual Learning

Just as a family interacts with all ages present, so must school-life and work-life interact to benefit all stages of productivity development. All members of a family typically gain from this multi-age interaction.

Every member of a society must contribute something to that society to earn his/her daily sustenance. Children can best learn about this when they are immersed in the work-world as they are learning to learn and learning the tools they need in order to apportion.

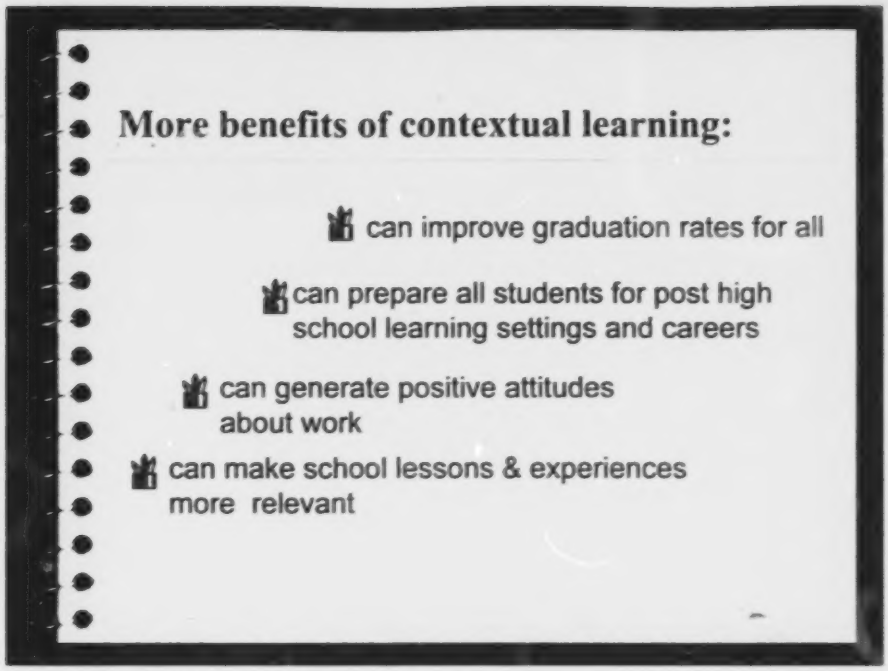

Benefits of contextual learning:
can raise academic achievement for all
can reduce high school drop-out rates for all
can improve attendance rates for all
can enhance interest in school and learning for all

Continue clicking to animate in the lines. This gives the presenter time to have the audience discuss any of these elements

These are the benefits listed in the following web site: (http://www.stw.ed.gov/products/html/1058.htm)

We cannot really know that these benefits are absolute. Our society is changing at a fast pace. We can educate people for the present and a possible future. This seems better than educating them for a world of work that existed in the past.

Present-day schools are more set up to prepare children for factories, management, and leadership – hence the tracking of children. However, the work world of the future that our children will be entering will probably require many more work avenues than society previously thought.


More benefits of contextual learning:
can improve graduation rates for all
can prepare all students for post high school learning settings and careers
can generate positive attitudes about work
can make school lessons & experiences more relevant

(continuation of benefits from previous slide)

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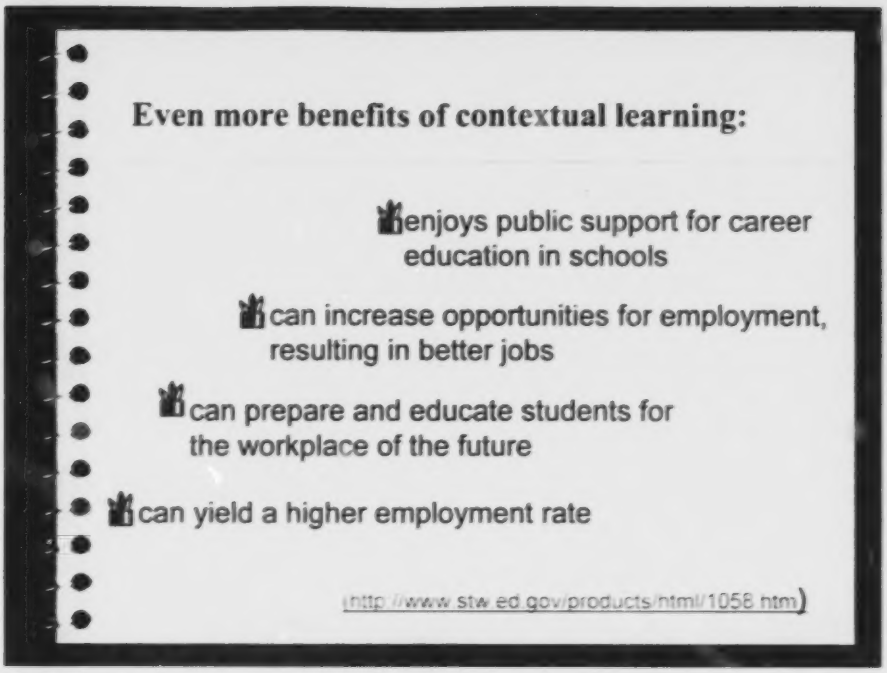
Even more benefits of contextual learning:
enjoys public support for career education in schools
can increase opportunities for employment, resulting in better jobs
can prepare and educate students for the workplace of the future
can yield a higher employment rate
(http://www.stw.ed.gov/products/html/1058.htm)

(continuation of strategies from previous slide)

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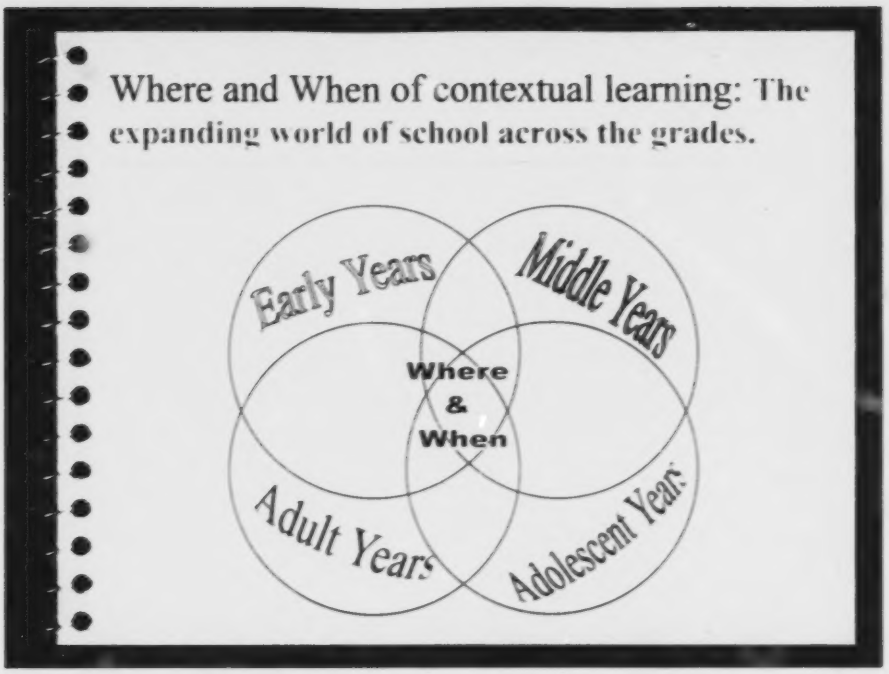
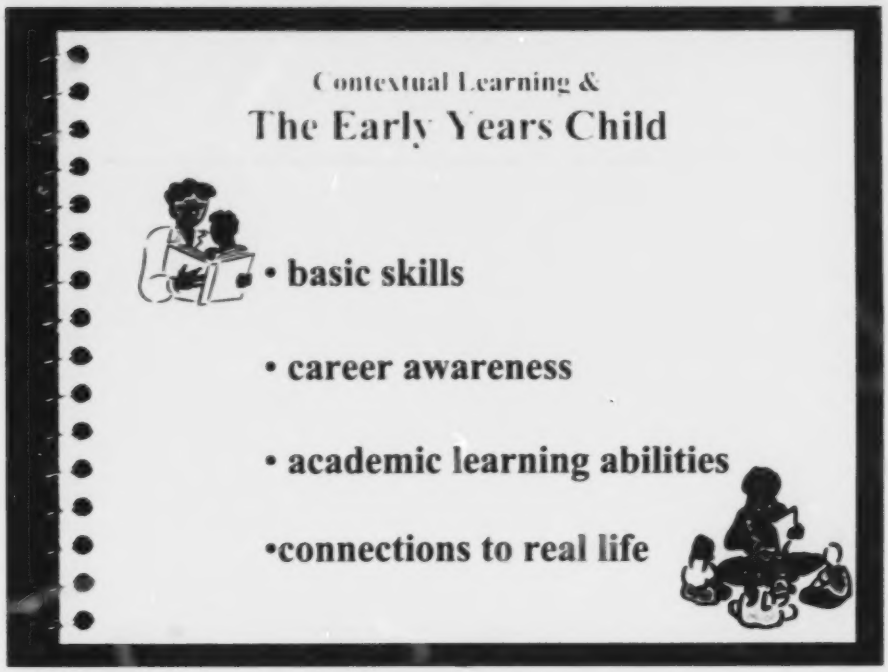

Where and When of contextual learning: The expanding world of school across the grades.
Early Years
Middle Years
Where & When
Adult Years
Adolescent Years

This slide helps us consider the sub concepts of "where" and "when" contextual learning is to take place.

In today's society, it is important to help youth find ways to see the connections between school-life and work-life. Contextual learning is designed to be implemented locally throughout the K-12 curriculum. It is essential that innovative programs be developed to insert young people into the world of work and to help students to see the connections between what they are learning in school and what is important in the real work world.

Continue clicking to animate in the circles. This gives the presenter time to have the audience discuss any of these elements.

An effective model considers a continual cycle from early years through adult years. Everyone wants their future citizens to be an asset to the community. Involvement in that community is critical for the next generation.



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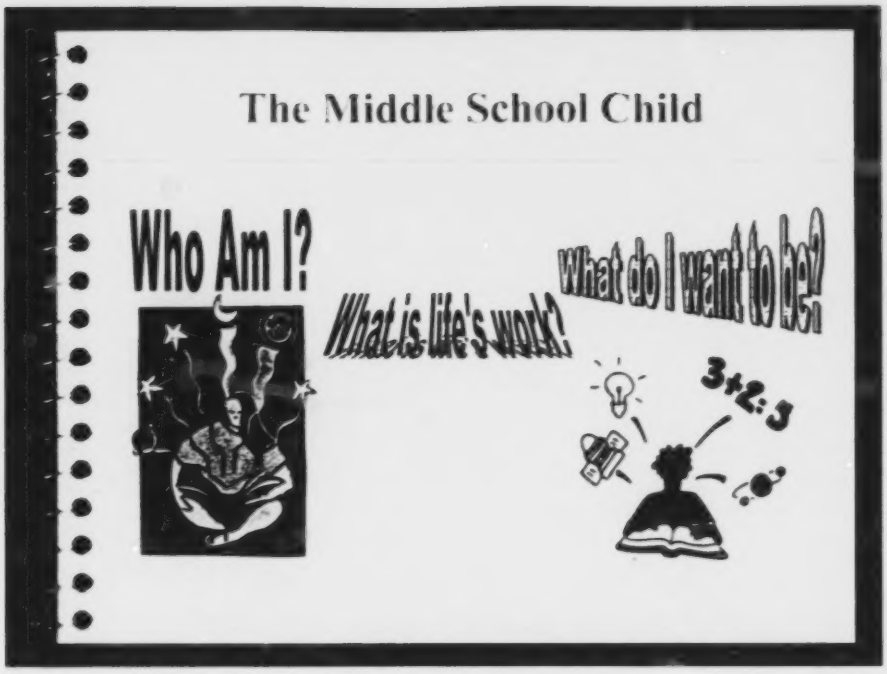
In the elementary grades, career awareness and developing basic skills are the major components of the student's education. Career awareness activities are designed to make students aware of the broad range of careers and/or occupations in the world of work, including options that may not be traditional for their gender, race, or ethnicity.

Career awareness activities can range from limited exposure to the world of work through field trips and classroom speakers, to comprehensive exposure, which may involve curriculum redesign and introduction of students to a wide span of career options. Developing career awareness includes creating an environment where students see connections between school and the real world.

Some things that teachers can do to develop career awareness include:

- •Develop in students an awareness of the world of work and of how their school learning experience is connected to their future.
- •Build connections for students between academic skills and the future.
- •Ensure lessons have some real relation to the real world.
- •Build a unit or an entire curriculum around an industry or business theme.
- •Bring in adult community members with jobs that utilize the skills students are learning into the classroom.
- •Have someone explain and demonstrate how a particular concept the students are studying is used in real life.
- •Introduce students to "real life" jobs including options that may not be traditional for the student's gender, race, or ethnicity.
- •Expose students to employment choices ("real life" jobs),
- •Help students see themselves as part of the future job force.
- •Simulate and/or model "real world" activities such as managing checking accounts, voting, participating in city governance, etc.

(http:www.stw.edu.gov/factsht/bul0197D.htm).



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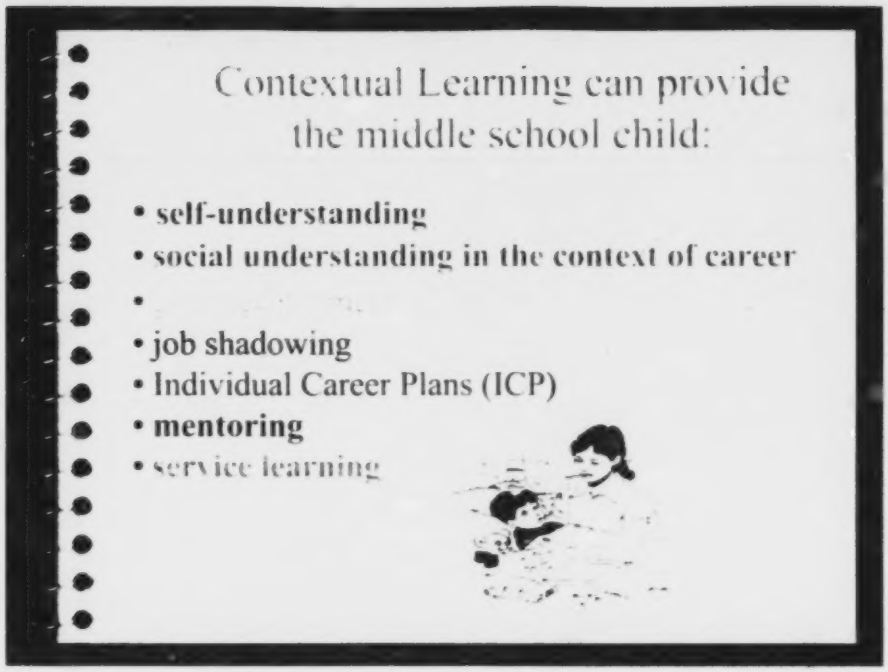
Middle school students are faced with the complexities of self-understanding (who am I?), social understanding in the context of career (what is life's work?), and goal development (what do I want to be?).

The middle school child experiences a time in much flux. Her/His body, emotions, and cognitive ability are changing dramatically. It will not be until the adolescent years that all of these systems will begin try to come into harmony. These are particularly sensitive years for learners. Although children at this age have a difficult time dealing with brand new concepts, they are adept at using old concepts in new or divergent ways. In fact, this is a particularly divergent time in life.


Contextual Learning can provide the middle school child:
• self-understanding
• social understanding in the context of career
• job shadowing
• Individual Career Plans (ICP)
• mentoring
• service learning

Continue clicking to animate in the words and pictures. This gives the presenter time to have the audience discuss any of these elements.

The middle school contextual learning experiences are intended to help students better understand adult roles. Students involved in real type work contexts at the middle school level have more opportunities to develop self-concept. They also may have more exposure to adults in a variety of occupational roles. The heightened awareness should help them draw connections between their interest, current course choices, and possible careers.

Effective contextual learning experiences in the middle school grades can provide students with extensive exposures to a wide variety of careers. It is at this level that students can begin to identify their interest, aptitudes, and abilities. Children can begin to link these elements of self-awareness to their newly acquired knowledge of careers.

The middle school grades continue to build on the foundation established in the elementary schools, utilizing career exploration as the primary focus. Career exploration should provide in-depth exposure to career options for students. Activities may include the study of career opportunities in particular fields to identify potential careers, writing individual learning plans that dovetail with career majors offered at the high school level, or review of local labor market information **(http://www.stw.ed.gov/factsht/bul10197D.htm).**

Children should understand that, although they may have a career goal, they can change that goal as they learn about additional career possibilities throughout their lifetimes. They will learn these possibilities through school-structured and non-school structured experiences.

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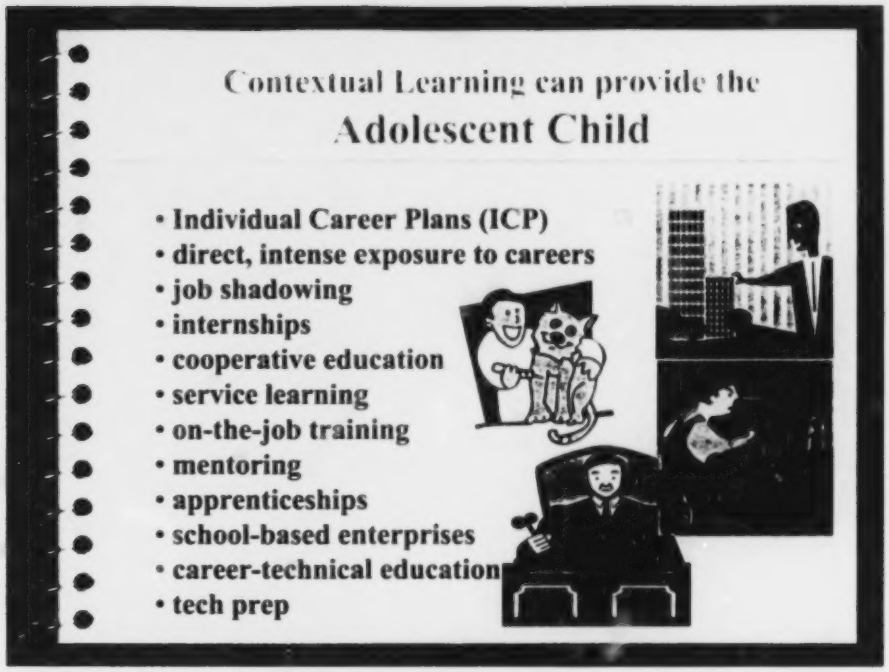

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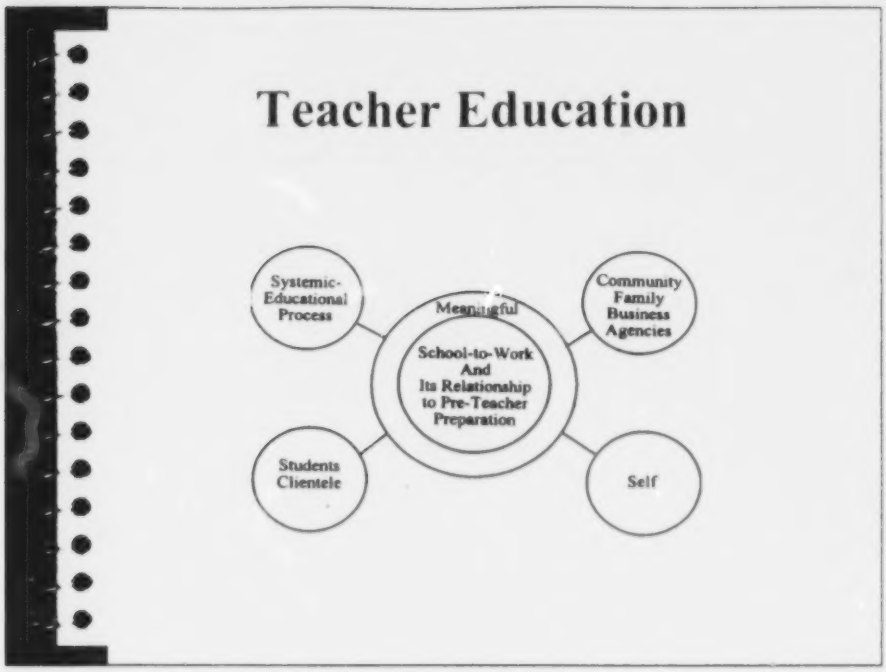
In high school, students' Individual Career Plans are critically evaluated and reevaluated as children learn more about themselves, careers and educational possibilities.

Activities at the high-school level can provide actual experiences, which are connected to classroom learning. Such activities may include, but are not limited to: Job Shadowing, Internships, Cooperative Education, Service Learning, On-the-Job Training, Mentoring, Apprenticeships, School-based Enterprises, Tech Prep, and Career/Technical Education.

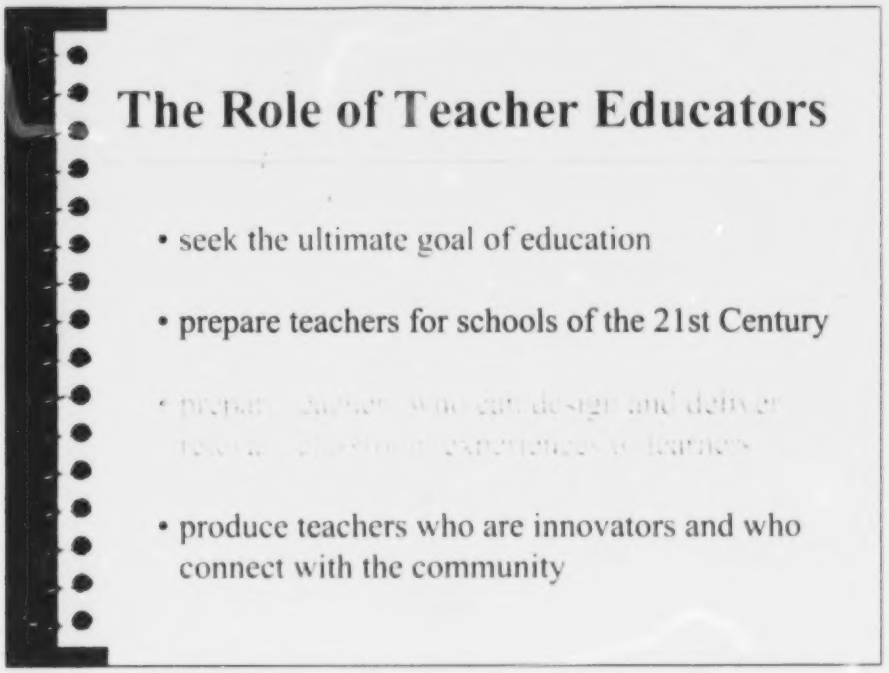
These work-based experiences should be combined with school-based learning to make both the workplace and classroom authentic learning situations that have relevance to students.



Teacher Education plays a major role in helping children see the connections between school-life and work-life. Teacher Education educates and trains teachers to view students as clientele coming from families and communities and in an important learning stage that will impact the rest of their lives.

Preservice teacher education needs to have its students consider how to help children see the connections between what is taught in school and how life is lead in the "real world".

Divider Slide


The Role of Teacher Educators
• seek the ultimate goal of education
• prepare teachers for schools of the 21st Century
• produce teachers who are innovators and who connect with the community

Those involved with the preparation of new teachers at colleges and universities in Ohio seek the ultimate goal of education, which is the enrichment of the lives of children, by helping them gain the knowledge and skills they need to lead satisfying and productive lives. The quality of our students' lives depends on our students having the educational skills necessary to participate in their roles as citizen, worker, family member, and individual (*A Framework for Integrating School-to-Work into Preservice Teacher Education in Ohio, 1999).*

To prepare teachers for Ohio schools in the 21st century and beyond, initiatives such as the Standards for Ohio Schools, Goals 2000, S-T-W and Best Practices have evolved. These programs focus on simultaneous changes in several arenas, one of which is teacher education.

The arts and science faculty of colleges and universities throughout Ohio play a significant role in producing teachers who are innovators and who connect with the community, including parents of their students, business people, and community leaders.

These newly educated teachers will be expected to implement a curriculum that is directed toward meeting the needs of children and our society. They must be prepared to create learning environments that enable those needs to be met while setting high standards for all children.

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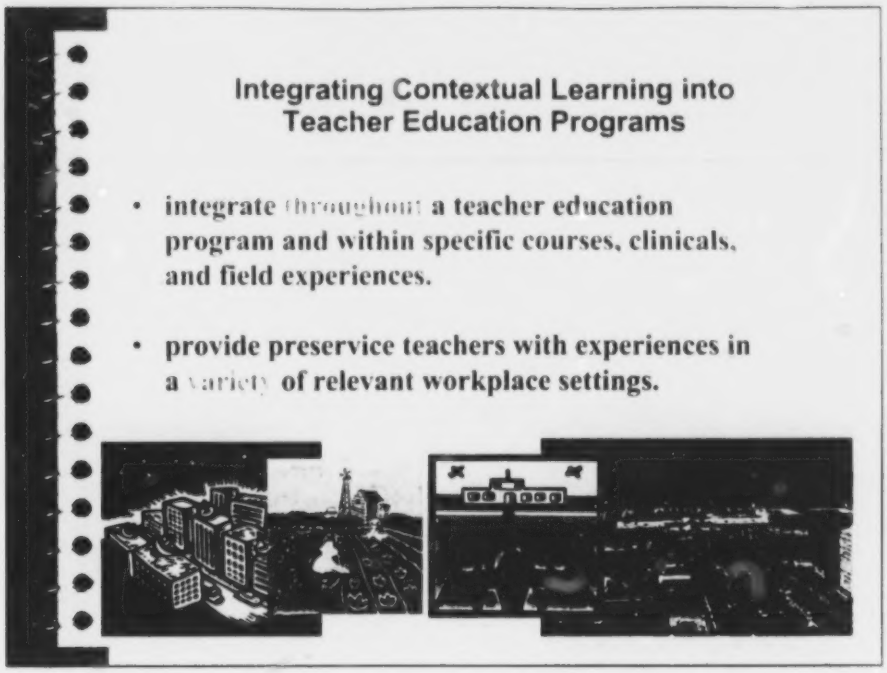
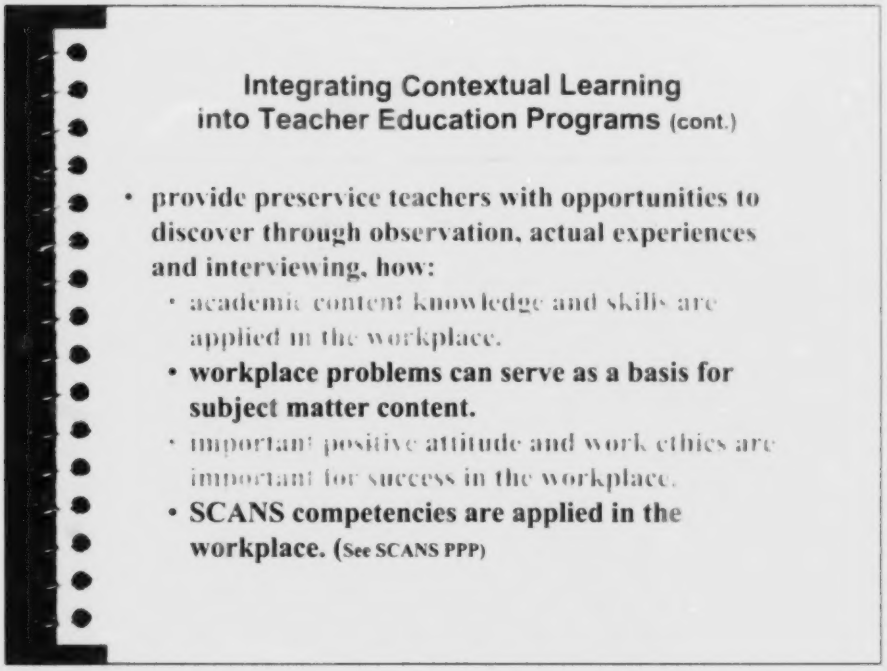

Integrating Contextual Learning into Teacher Education Programs
• integrate throughout a teacher education program and within specific courses, clinicals, and field experiences.
• provide preservice teachers with experiences in a variety of relevant workplace settings.

Continue clicking to animate in the words and pictures. This gives the presenter time to have the audience discuss any of these elements.

These strategies were identified in *A Framework for Integrating School-to-Work into Preservice Teacher Education in Ohio (1999)* that was created by a team of faculty representing multiple universities in the state. These strategies appropriately apply to contextual learning.


Integrating Contextual Learning
into Teacher Education Programs (cont.)
• provide preservice teachers with opportunities to discover through observation, actual experiences and interviewing, how:
• academic content knowledge and skills are applied in the workplace.
• workplace problems can serve as a basis for subject matter content.
• important positive attitude and work ethics are important for success in the workplace.
• SCANS competencies are applied in the workplace. (See SCANS PPP)

Continue clicking to animate in the words and pictures. This gives the presenter time to have the audience discuss any of these elements.

It is suggested that the audience be encouraged to contribute several examples in each area before moving to the next suggestion.

SCANS comes from *What Work Requires of School: A Scans (Secretary's Commission on Achieving Necessary Skills) Report for America 2000* (1991). It includes foundation skills such as the basic skills of reading, writing, arithmetic, listening and speaking. The thinking skills of creative thinking, decision making, problem solving, seeing things in the mind's eye, knowing how to learn an reasoning are also included. Personal qualities such as responsibility, self-esteem, sociability, self-management, and integrity are also considered foundation skills. The SCANS also delineates what 'work' requires schools to be about so that employers can have competent workers. These competencies are the ability to identify, organize, plan and allocate resources; work with others; acquire an use information; understand complex inter-relationships, and work with a variety of technologies.

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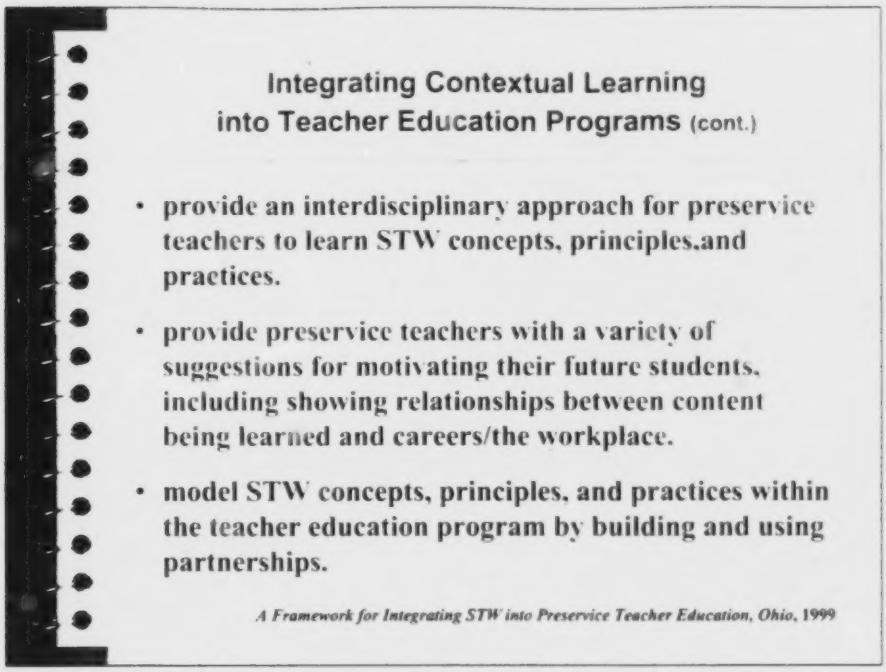
Integrating Contextual Learning
into Teacher Education Programs (cont.)
• provide an interdisciplinary approach for preservice teachers to learn STW concepts, principles,and practices.
• provide preservice teachers with a variety of suggestions for motivating their future students, including showing relationships between content being learned and careers/the workplace.
• model STW concepts, principles, and practices within the teacher education program by building and using partnerships.
A Framework for Integrating STW into Preservice Teacher Education, Ohio, 1999

Continue clicking to animate in the words and pictures. This gives the presenter time to have the audience discuss any of these elements.

(continuation of strategies from previous slide)

Educators are called upon to do more and more with less and less. The STW effort served as a catalyst for contextual learning and partnerships where all partners want all learners to become successful, productive and happy adults. This is not an effort that asks for more, but an effort that takes what schools and society already have and works with partners to link school learning with the real world. This process can start in the K-12 arena. It should not be left until school graduation or after college. We must explore with our partners, including students, how to transfer our school experiences into the real world prior to moving into a career. The 21st century is just beginning. Our K-12 children will have many opportunities which will span most of the century.

Will they be prepared?

Contextual Learning

Connecting School-Life to Work-Life

What? Who? When?
Where? and Why?

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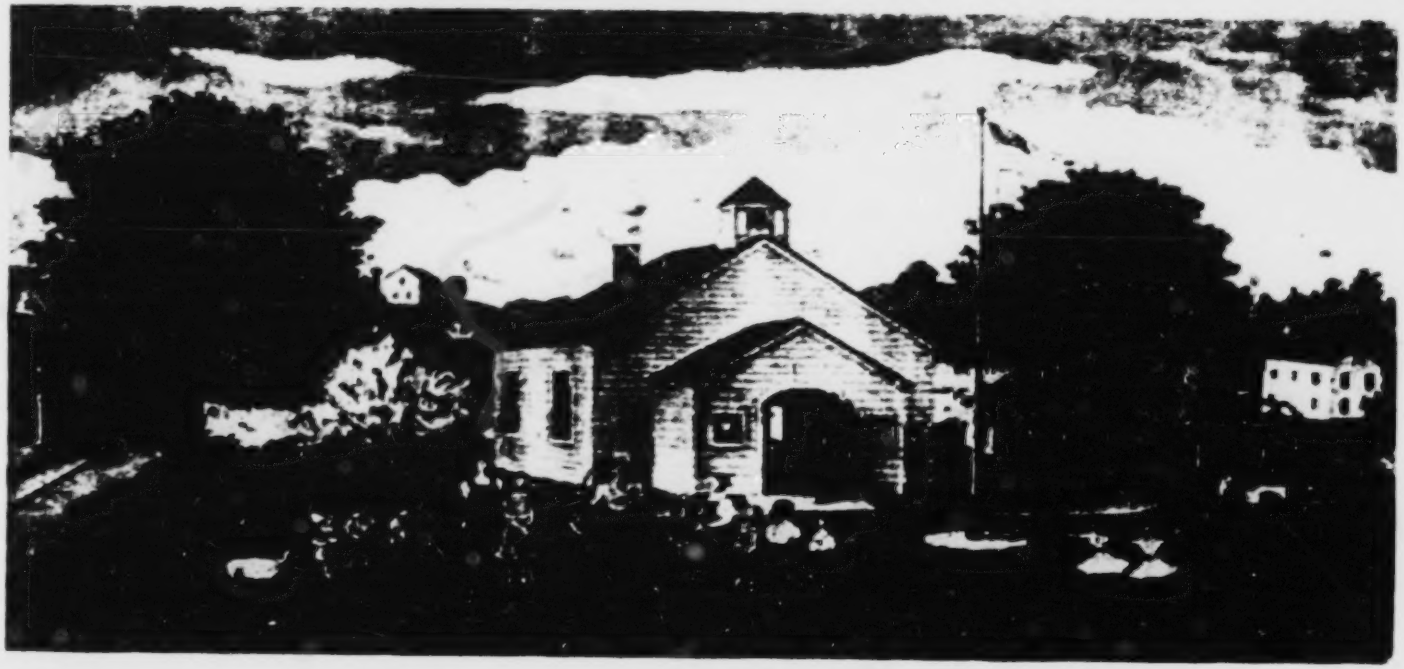
SCHOOL-LIFE



What? Who? When?
Where? and Why?

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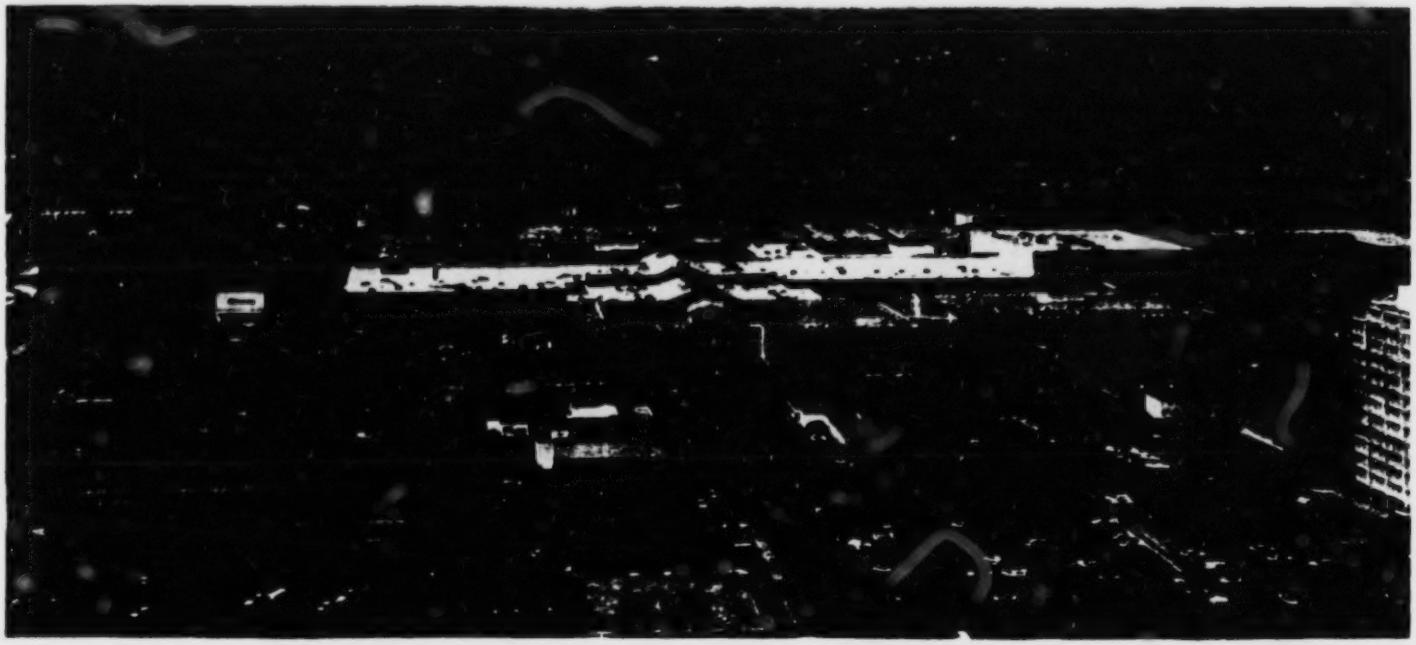
WORK-LIFE



What? Who? When?
Where? and Why?

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What is contextual learning?

- a means for helping students see meaning in classes
- requires partnerships OF

schools,

+

families,

+

communities,

+ and *students.*

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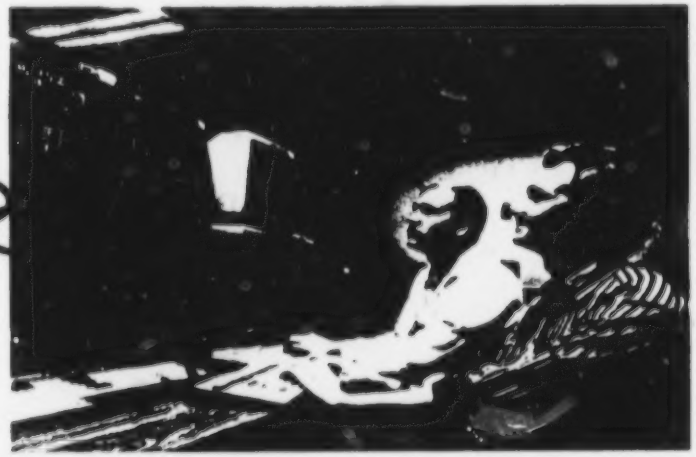
An Approach to Learning

For all students

- *linking* learning with real work situations



-*making* transitions from school-life to the world of work

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Federal Mission

★ School-to-Work

The goals of contextual learning are to provide:

- **real life contextual education**
- **Open possibilities for prospective employment opportunities**
- **additional adult role models**
- **multiple post-secondary options for all students.**

Externship experiences are designed to:

- **develop young people's competence and confidence**
- **connect students to a range of post-secondary options (e.g., four-year college, two-year college, technical training, structured entry-level work along a career path)**

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Ohio's Mission

"to ensure that every Ohio student graduates from high school with the knowledge and skills needed to succeed in the ever-changing world of work and is prepared for lifelong learning"

(www.stw.ed.gov/states/profiles/oh.htm)

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Every student should be provided with:

- relevant education
- an opportunity to develop relevant skills
- an opportunity to earn valued credentials

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School-life & Work-life
connections are designed to:

- provide opportunities for all K-12 students

- integrate the core curriculum and real life context

Mathematics *Health* ***Music*** *Reading* *Science* *History*

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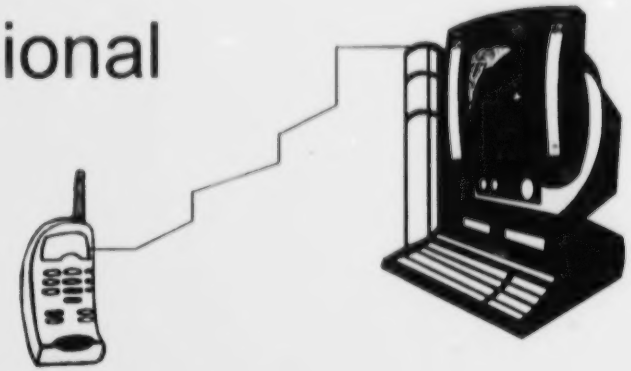
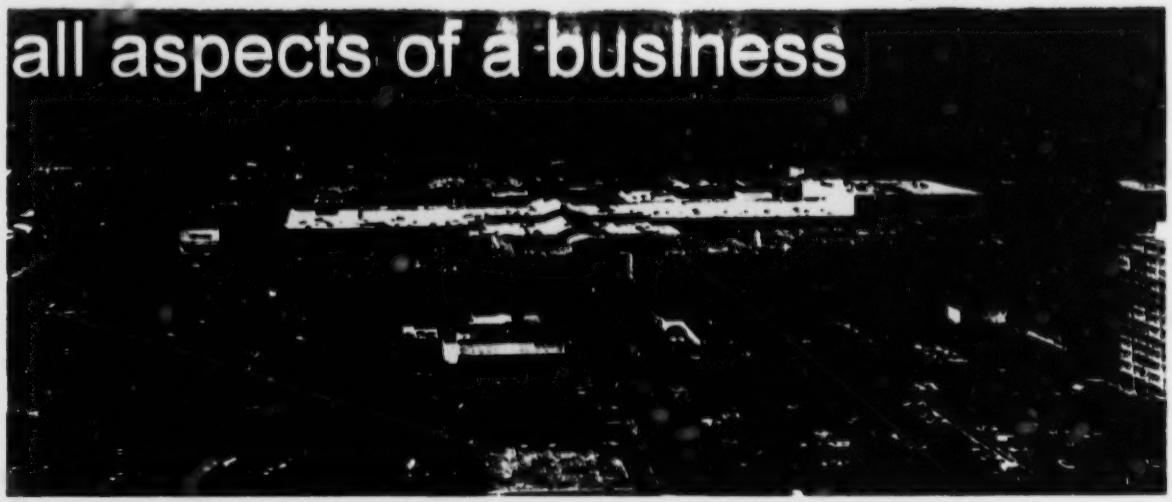
School-life & **Work life** connections
are designed to (cont.):

- enhance professional development and communication



- explore all aspects of a business



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School-life & Work-life connections are designed to (cont.):

- explore employer and labor union involvement
- support career majors

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School-life & Work-life connections are designed to (cont.):

- establish sub-state structures

- promote accountability

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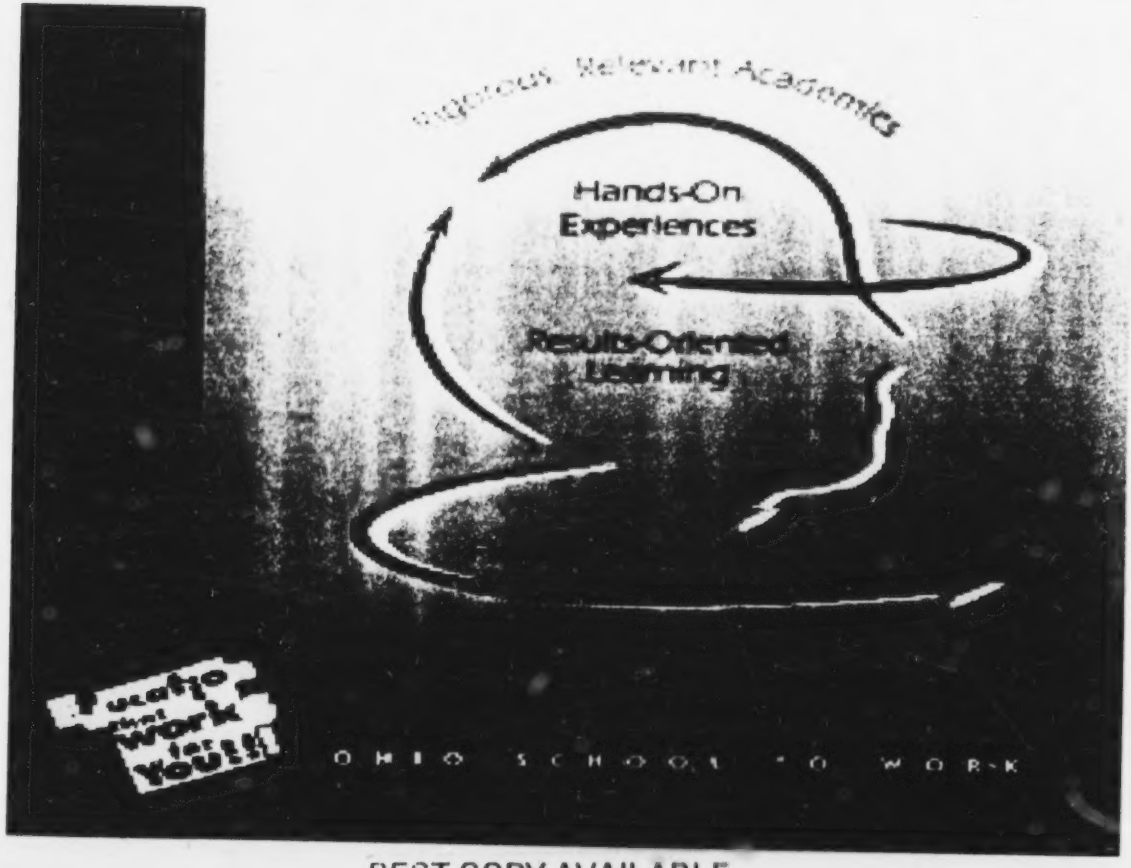
Initial Rationale Behind Contextual Learning Effort



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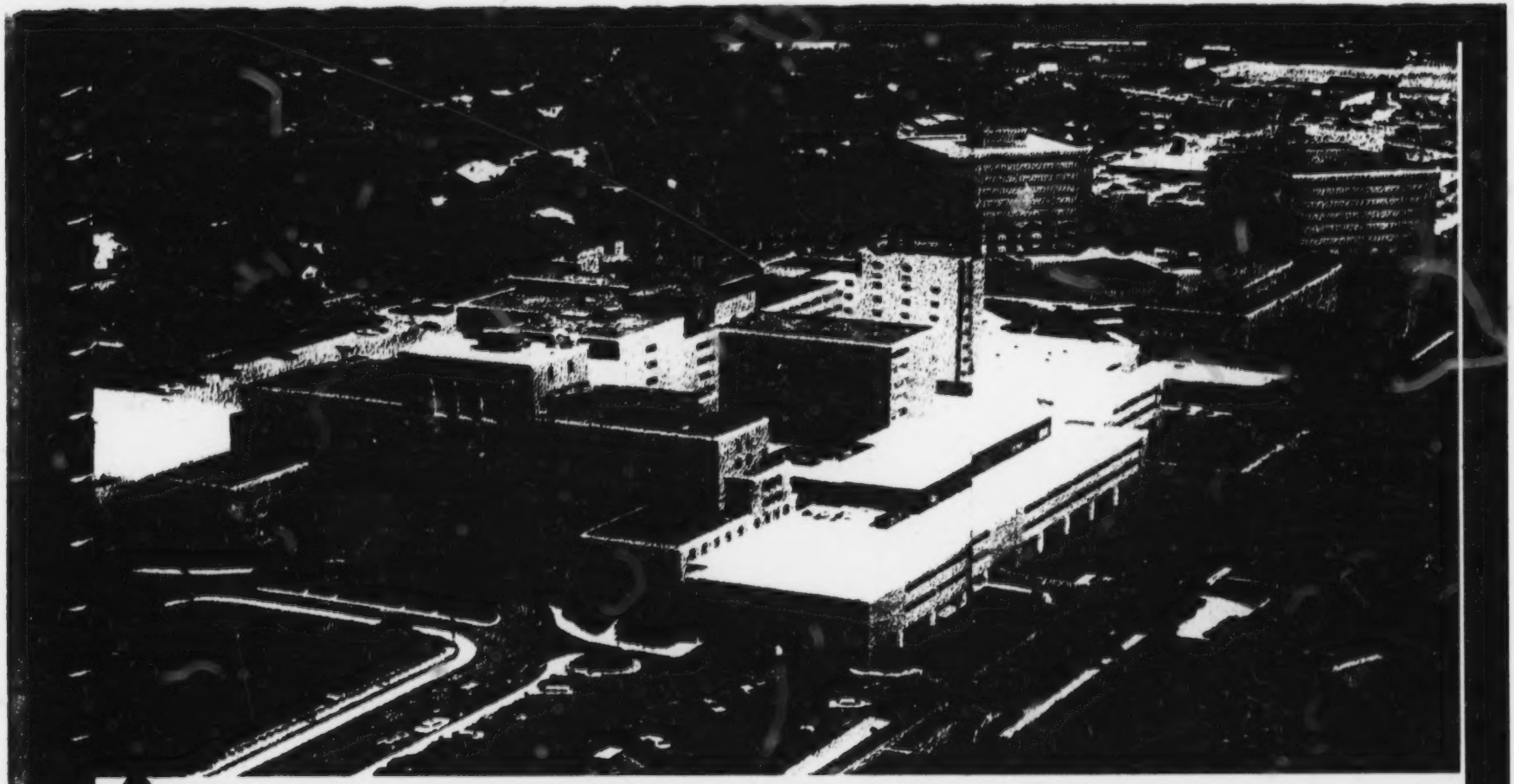

- It is the KINDS of jobs that will change and increase in any business and/or industry during the 21st Century.

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School-life & Work-life Core Elements:

- *School-based learning* - classroom instruction based on high academics and business-defined occupational skill standards.

- *Work-based learning* - career exploration, work experience, structured training and mentoring at job sites.

- *Connecting Activities* - correlating classroom and work-based instruction, matching students with participating employers, training mentors, and building other bridges between school-life and work-life.

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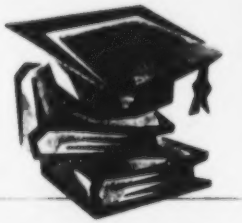
Related Principles:



- Learning can be enhanced when teachers focus on the child.
  - Applying knowledge and skills to meaningful contexts can increase learning, retention, interest.
- Making connections between school learning and life learning can enhance learning, retention, and interest.
  - Teaching in authentic contexts can be a pervasive, powerful tool in improving children's performance

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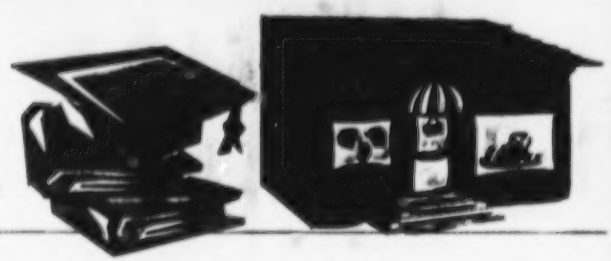
More Related Principles:



- Connecting new learning to real life situations can bring relevance to students.
- Engaging in application of learning to real life situations can bring relevance to students.
- Meeting and working with a wide variety of people can allow students to better understand the concepts of diversity.
- Understanding the diversity of children can lead to understanding that all children can learn.

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Benefits of Contextual Learning

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Benefits of contextual learning:

- can raise academic achievement for all
- can reduce high school drop-out rates for all
- can improve attendance rates for all
- can enhance interest in school and learning for all

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More benefits of contextual learning:

- can improve graduation rates for all
- can prepare all students for post high school learning settings and careers
- can generate positive attitudes about work
- can make school lessons & experiences more relevant

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Even more benefits of contextual learning:

- enjoys public support for career education in schools
- can increase opportunities for employment, resulting in better jobs
- can prepare and educate students for the workplace of the future
- can yield a higher employment rate

(http://www.stw.ed.gov/products/html/1058.htm)

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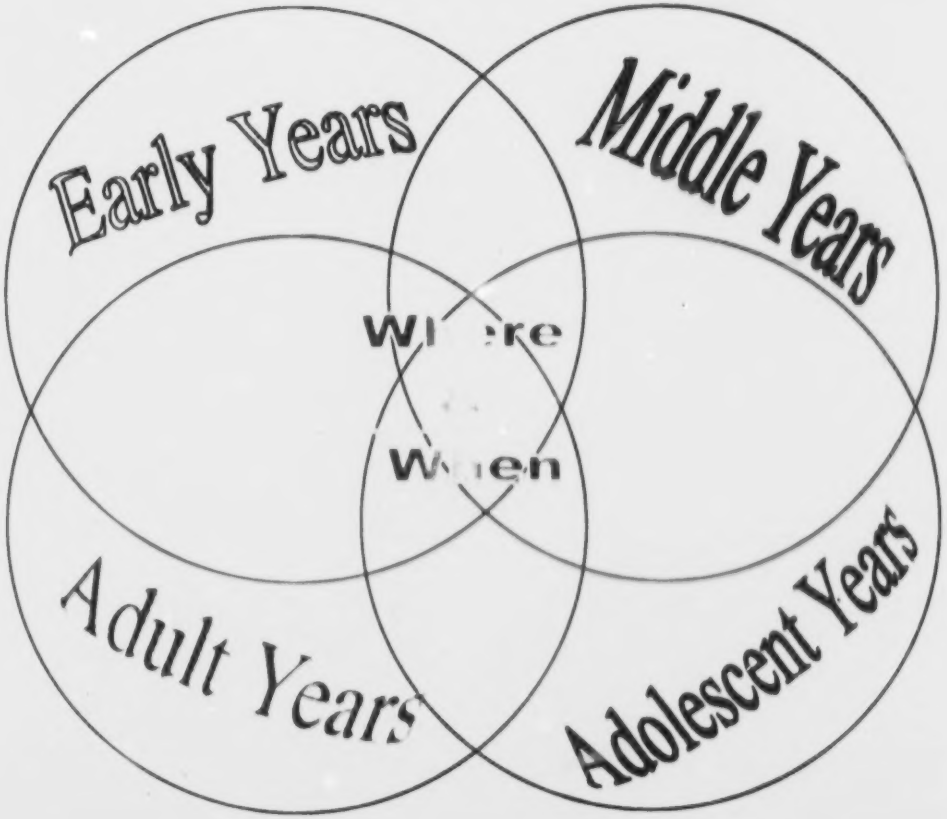
Where and When of contextual learning: **The expanding world of school across the grades.**



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Contextual Learning &

The Early Years Child

- basic skills
- career awareness
- academic learning abilities
- connections to real life

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The Middle School Child

Who Am I?

What is life's work?

What do I want to be?

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Contextual Learning can provide

the middle school child:

- **self-understanding**
- **social understanding in the context of career**
- goal development
- job shadowing
- Individual Career Plans (ICP)
- **mentoring**
- service learning

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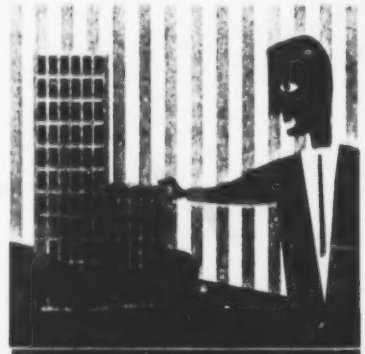
Contextual Learning can provide the Adolescent Child

- Individual Career Plans (ICP)
- direct, intense exposure to careers
- job shadowing
- internships
- cooperative education
- service learning
- on-the-job training
- mentoring
- apprenticeships
- school-based enterprises
- career-technical education
- tech prep



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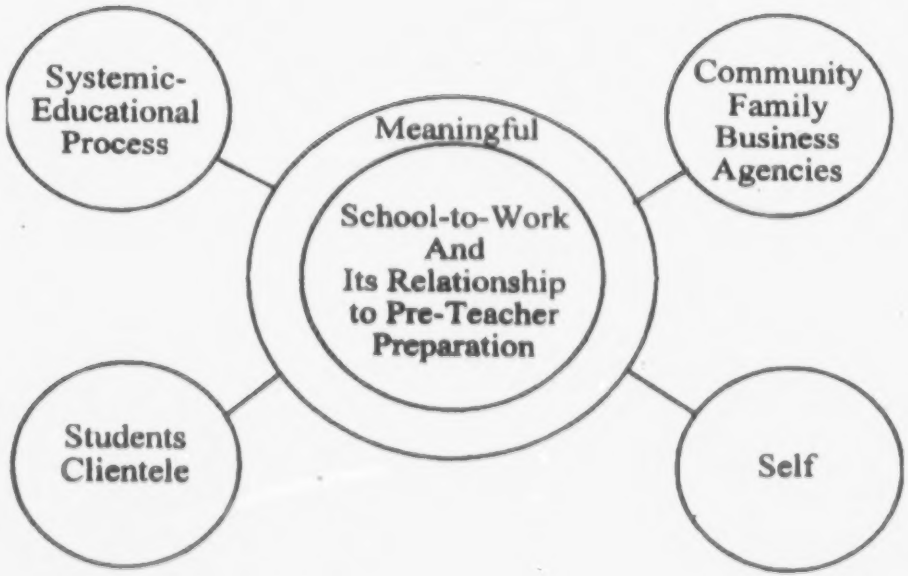
Teacher Education



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The Role of Teacher Educators

- seek the ultimate goal of education
- prepare teachers for schools of the 21st Century
- prepare teachers who can design and deliver [illegible] classroom experiences to learners
- produce teachers who are innovators and who connect with the community

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Integrating Contextual Learning into Teacher Education Programs

- **integrate throughout a teacher education program and within specific courses, clinicals, and field experiences.**

- **provide preservice teachers with experiences in a variety of relevant workplace settings.**

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Integrating Contextual Learning into Teacher Education Programs (cont.)

- provide preservice teachers with opportunities to discover through observation, actual experiences and interviewing, how:
  - academic content knowledge and skills are applied in the workplace.
  - workplace problems can serve as a basis for subject matter content.
  - important positive attitude and work ethics are important for success in the workplace.
  - SCANS competencies are applied in the workplace. (See SCANS PPP)

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Integrating Contextual Learning into Teacher Education Programs (cont.)

- **provide an interdisciplinary approach for preservice teachers to learn STW concepts, principles,and practices.**
- **provide preservice teachers with a variety of suggestions for motivating their future students, including showing relationships between content being learned and careers/the workplace.**
- **model STW concepts, principles, and practices within the teacher education program by building and using partnerships.**

***A Framework for Integrating STW into Preservice Teacher Education, Ohio*, 1999**

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When all join together,

the stars can be reached

- with the leverage of partnerships with students, teachers, parents and the real world.

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Crosswalk

Connecting School-Life
to Work-Life

A Corresponding Vision

Notes for this PowerPoint Presentation
are provided in this section

See the CD-Rom for the electronic version

Crosswalk: Connecting School-life with Work-life

This is a conceptual mapping of ideas that shows the relationship among the School-to-Work Preservice Teacher Education Programs Framework of Ohio, the Ohio Licensure Standards, the assessment criteria in Praxis III, and the National Board for Professional Teaching Standards. The map uses the Praxis III as a ground since this is most important to preservice education. Teachers must pass the Praxis III within the first two years to gain their teaching license. Although contextual learning is highlighted in the Preservice Framework section, attention is also given to all statements that support the Praxis III domains and outcomes. The Preservice Framework was developed by a coalition of professors from six of Ohio's institutions of higher learning. To guide the development of Ohio's teacher education programs and Praxis III, Ohio produced the Ohio Licensure Performance Areas. These are also referenced as they relate to Praxis III and the Preservice Framework. The last column shows how the five core propositions of the National Board for Professional Teaching Standards resonate with the first three documents. This document shows the corresponding vision of all of these documents.

Connecting School-life with Work-life
A Corresponding Vision

Contextual Learning

Crosswalking through---

School---

to---

Work

Preservice Teacher Education

Framework

CROSSWALKING THROUGH:

School-to-Work Preservice Teacher Education Programs Framework	Ohio Licensure Standards	Teacher Performance Assessments	National Board for Professional Teaching Standards
Teaching and Learning Principles (page 6) and Outcomes (page 35-36)	10 Performance Areas	Assessment Criteria PRAXIS III	Five Core Propositions NBPTS

2

1) The left column includes statements from the STW "Frameworks" document (It should become apparent that STW or contextual learning is in alignment with the Ohio Licensure standards, The Praxis III and the NBPTS.)

2) The second column represents the 10 performance areas that the state of Ohio has identified for preservice teachers. These are the areas on which all colleges of education are to focus.

3) The next column includes words from the PRAXIS III assessment. In order to license teachers, during their first year, they will be assessed using the PRAXIS III observation criteria. The red throughout is to indicate how the state is going to assess preservice teachers.

4) The last column includes words from the National Board for Professional Teaching Standards' Five Core Propositions. All of the over 30 sets of standards began with and include these core propositions. They represent the core of what teachers should know and be able to do who are exemplary in their practice.

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain A: Organizing Content Knowledge for Student Learning	*Proposition Two*: **Teachers know the subjects they teach and how to teach those subjects to students.**
Children's learning is enhanced when teachers focus on the child. All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests. Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	**Understands how students learn and develop, & creates opportunities for each student's academic development.** Understands differences in how students learn & provides instruction to accommodate such diversity. Plans instruction based on knowledge of subject matter, of students, & of curriculum goals & models.	**A1. Become familiar with relevant aspects of students' background knowledge & experiences.**	**2. Teachers generate multiple paths to knowledge.**

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems. Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	**Understands how students learn and develop, & creates opportunities for each student's academic development.**	**A2. Articulate clear learning goals for the lesson that are appropriate for the students.**	**2. Teachers command specialized knowledge of how to convey a subject to students.**
Children learn best when new ideas are connected to what they already know and have experienced. Apply STW concepts in such a way that it is seamless within the curriculum.	Has a thorough understanding & knowledge of subject matter & uses such to create effective learning experiences for students. Plans instruction based on knowledge of subject matter, of students, & of curriculum goals & models.	**A3. Demonstrate an understanding of the connections between previously learned content, current content, & content that yet to be learned.**	2. Teachers appreciate how knowledge in their subjects is created, organized, and linked to other disciplines. 4

Whenever an arrow appears, this indicates that an outcome from the STW Framework is identified rather than one of the teaching & Learning Principles.

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn more & retain it longer when they apply their knowledge & skills to meaningful contexts. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems. Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.	**Has a thorough understanding & knowledge of subject matter & uses such knowledge to create effective learning experiences for students.** Uses a variety of instructional strategies that encourage each student to develop critical-thinking & problem-solving skills.	**A4. Create or select teaching methods, learning activities, & instructional materials or other resources that are appropriate for the students & that are aligned with the goals of the lesson.**	**2. Teachers generate multiple paths to knowledge.**

5

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Use authentic strategies to assess relevant student achievement.	Effectively uses formal & informal assessment strategies to evaluate student progress.	A5. Create or select evaluation strategies that are appropriate for the students & that are aligned with the goals of the lesson.	3. Teachers regularly assess student progress.

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain B Creating an Environment for Student Learning	***Proposition Three:*** Teachers are responsible for managing & monitoring student learning
All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests. Children learn best when new ideas are connected to what they already know and have experienced. Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.** Understands differences in how students learn & provides instruction to accommodate such diversity.	**B1. Create a climate that promotes fairness.**	**3. Teachers call on multiple methods to meet their goals.**

7

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems. All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.**	**B3. Communicate challenging learning expectations to each student.**	**3. Teachers orchestrate learning in group settings.** 3. Teachers place a premium on student engagement.

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Analyze how the concept of work presents itself in school.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.**	**B4. Establish and maintain consistent standards of classroom behavior.**	**1. Teachers recognize individual differences in their students & adjust their practice.**
Design lessons that will include learning in a real world context.	Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.	**B5. Make the physical environment as safe & conducive to learning as possible.**	3. Teachers call on multiple methods to meet their goals.

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain C: Teaching for Student Learning	*Proposition One:* Teachers are committed to students & their learning
Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.** Effectively communicates in the classroom by using a variety of communication skills, including verbal & nonverbal techniques, technology, & media.	**C1. Make learning goals & instructional procedures clear to students.**	**1. Teachers have an understanding of how students develop and learn.**

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
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12

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn more & retain it longer when they apply their knowledge & skills to meaningful contexts. Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems.	**Uses a variety of instructional strategies that encourage each student to develop critical-thinking & problem-solving skills.**	**C3. Encourage students to extend their thinking.**	**1. Teachers' mission extends beyond developing the cognitive capacity of their students.**

13

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Use authentic assessment strategies to assess relevant student achievement.	Effectively uses formal & informal assessment strategies to evaluate student progress.	C4. Monitor students' understanding of content through a variety of means, providing feedback to students to assist learning, & adjust learning activities as the situation demands.	*Proposition Four:* Teachers think systematically about their practice and learn from experience.

14

Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems. Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	**Has a thorough understanding & knowledge of subject matter & uses such knowledge to create effective learning experiences for students.** Plans instruction based on knowledge of subject matter, of students, & of curriculum goals & models.	**C5. Use instructional time effectively.**	**4. Teachers are continually making difficult choices that test their judgment.**

15

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain D: Teacher Professionalism	***Proposition Five:*** Teachers contribute to school effectiveness by collaborating with other professionals.
Demonstrate the ability to map cross-discipline content and develop content for integration.	**Analyzes past experiences & pursues professional development opportunities to improve future performance.**	**D1. Reflect on the extent to which the learning goals were met.**	
Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	Effectively communicates in the classroom by using a variety of communication skills, including verbal & nonverbal techniques, technology, & media.	**D2. Demonstrate a sense of efficacy.**	4. Teachers seek the advice of others & draw on education research and scholarship to improve their practice.

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Teaching & Learning Principles and Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Demonstrate the ability to map cross-discipline content and develop content for integration.	**Works with parents/family members, school colleagues, & community members to support student learning & development.**	**D3. Build professional relationships with colleagues to share teaching insights and to coordinate learning activities for students.**	**5. Teachers are members of learning communities.**
Assist parents to see connections between school, subjects, and workplace.	Works with parents/family members, school colleagues, & community members to support student learning & development.	**D4. Communicate with parents or guardians about student learning.**	5. Teachers work collaboratively with parents.

17

Connecting School-life with Work-life
A Corresponding Vision

Contextual Learning

Crosswalking through:

School---

to---

Work

Preservice Teacher Education

Framework

By Dora L. Bailey, Ph.D.; Y.S.U.

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CROSSWALKING THROUGH:

School-to-Work **Preservice Teacher Education Programs Framework** **Teaching and Learning Principles** (page 6) and **Outcomes** (page 35-36)	**Ohio Licensure Standards** 10 Performance Areas	Teacher Performance Assessments **Assessment Criteria* PRAXIS III**	**National Board for Professional Teaching Standards** Five Core Propositions NBPTS

2

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⇒Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain A: Organizing Content Knowledge for Student Learning	***Proposition Two*: Teachers know the subjects they teach and how to teach those subjects to students.**
Children's learning is enhanced when teachers focus on the child. All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests. Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	**Understands how students learn and develop, & creates opportunities for each student's academic development.** Understands differences in how students learn & provides instruction to accommodate such diversity. Plans instruction based on knowledge of subject matter, of students, & of curriculum goals & models.	**A1. Become familiar with relevant aspects of students' background knowledge & experiences.**	**2. Teachers generate multiple paths to knowledge.**

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems. Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	**Understands how students learn and develop, & creates opportunities for each student's academic development.**	**A2. Articulate clear learning goals for the lesson that are appropriate for the students.**	**2. Teachers command specialized knowledge of how to convey a subject to students.**
Children learn best when new ideas are connected to what they already know and have experienced. ➳Apply STW concepts in such a way that it is seamless within the curriculum.	Has a thorough understanding & knowledge of subject matter & uses such to create effective learning experiences for students. Plans instruction based on knowledge of subject matter, of students, & of curriculum goals & models.	A3. Demonstrate an understanding of the connections between previously learned content, current content, & content that remains to be learned.	2. Teachers appreciate how knowledge in their subjects is created, organized, and linked to other disciplines. 4

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn more & retain it longer when they apply their knowledge & skills to meaningful contexts. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems. Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.	**Has a thorough understanding & knowledge of subject matter & uses such knowledge to create effective learning experiences for students.** Uses a variety of instructional strategies that encourage each student to develop critical-thinking & problem-solving skills.	**A4. Create or select teaching methods, learning activities, & instructional materials or other resources that are appropriate for the students & that are aligned with the goals of the lesson.**	**2. Teachers generate multiple paths to knowledge.**

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
➳ Use authentic strategies to assess relevant student achievement.	Effectively uses formal & informal assessment strategies to evaluate student progress.	A5. Create or select evaluation strategies that are appropriate for the students & that are aligned with the goals of the lesson.	3. Teachers regularly assess student progress.

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain B: Creating an Environment for Student Learning	***Proposition Three:*** **Teachers are responsible for managing & monitoring student learning.**
All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests. Children learn best when new ideas are connected to what they already know and have experienced. Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.** Understands differences in how students learn & provides instruction to accommodate such diversity.	**B1. Create a climate that promotes fairness.**	**3. Teachers call on multiple methods to meet their goals.**

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems. All children can learn. The wide diversity of learners requires an understanding of a variety of culture, races, aptitude levels, & interests.	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.**	**B3. Communicate challenging learning expectations to each student.**	**3. Teachers orchestrate learning in group settings.** 3. Teachers place a premium on student engagement.

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
➳ **Analyze how the concept of work presents itself in school.**	**Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.**	**B4. Establish and maintain consistent standards of classroom behavior.**	**1. Teachers recognize individual differences in their students & adjust their practice.**
➳ Design lessons that will include learning in a real world context.	Creates a learning environment that encourages active, engaged learning; positive interaction; & self-motivation for all students.	B5. Make the physical environment as safe & conducive to learning as possible.	3. Teachers call on multiple methods to meet their goals.

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain C: Teaching for Student Learning	***Proposition One:*** **Teachers are committed to students & their learning.**
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11

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems. ➳ Use a variety of approaches to apply STW concepts and principles.	**Has a thorough understanding & knowledge of subject matter & uses such knowledge to create effective learning experiences for students.** Understands how students learn and develop, & creates opportunities for each student's academic development. **Effectively** communicates in the classroom by using a variety of communication skills, including verbal & nonverbal techniques, technology, & media.	**C2. Make content comprehensible to students.**	**1. Teachers have an understanding of how students develop & learn.**

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Teaching & Learning Principles and ➳ Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
Children learn more & retain it longer when they apply their knowledge & skills to meaningful contexts. Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance. An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems.	**Uses a variety of instructional strategies that encourage each student to develop critical-thinking & problem-solving skills.**	**C3. Encourage students to extend their thinking.**	**1. Teachers' mission extends beyond developing the cognitive capacity of their students.**

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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
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Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
		Domain D: Teacher Professionalism	***Proposition Five:*** **Teachers contribute to school effectiveness by collaborating with other professionals.**
➳ Demonstrate the ability to map cross-discipline content and develop content for integration.	**Analyzes past experiences & pursues professional development opportunities to improve future performance.**	**D1. Reflect on the extent to which the learning goals were met.**	
Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.	Effectively communicates in the classroom by using a variety of communication skills, including verbal & nonverbal techniques, technology, & media.	D2. Demonstrate a sense of efficacy.	4. Teachers seek the advice of others & draw on education research and scholarship to improve their practice.

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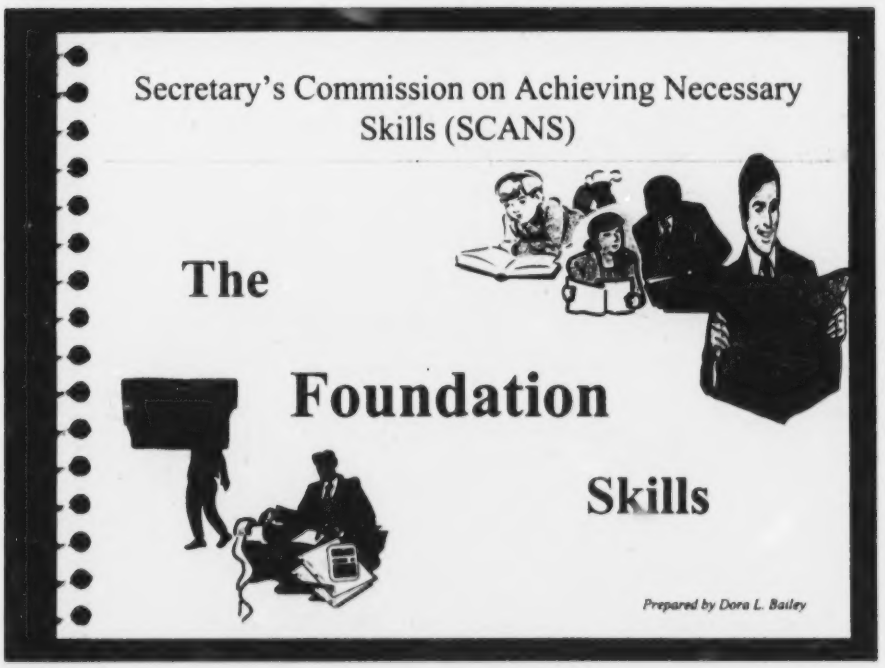
Teaching & Learning Principles and ➳Outcomes	Ohio Licensure Performance Areas	Teacher Performance Assessment Criteria	NBPTS
➳ Demonstrate the ability to map cross-discipline content and develop content for integration.	**Works with parents/family members, school colleagues, & community members to support student learning & development.**	**D3. Build professional relationships with colleagues to share teaching insights and to coordinate learning activities for students.**	**5. Teachers are members of learning communities.**
➳ Assist parents to see connections between school, subjects, and workplace.	Works with parents/family members, school colleagues, & community members to support student learning & development.	D4. Communicate with parents or guardians about student learning.	5. Teachers work collaboratively with parents.

SCANS

The Foundation Skills

Notes for this PowerPoint Presentation
are provided in this section

See the CD-Rom for the electronic version



What Work Requires of School: A SCANS Report for American 2000 (1991) was developed by the Secretary's Commission on Achieving Necessary Skills (SCANS) of the U.S. Department of Labor. This report identifies competencies and the foundation necessary for successful induction into careers. According to business and labor, development of these competencies and foundation skills could begin in the early school years and continue through high school.

The foundation skills include a person's development of reading and mathematics. Reading is a skill that can be developed early on in schooling. Reading continues to develop as a person uses it. But the adult's ability to use reading is directly related to the foundational development in school.

Mathematics is a skill that can be developed early on in schooling. Mathematics acuity continues to develop as a person uses it. But the adult's ability to use mathematics is directly related to the foundational development in school.

In the Foundation category competence requires basic skills, thinking skills, and personal qualities.

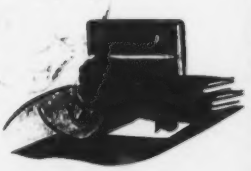
To some extent according to developmental appropriateness, all of these could be included in every curriculum for students to be successful.

FOUNDATION SKILLS

BASIC SKILLS

1. Reading - locates, understands, and interprets written information in documents such as manuals, graphs,and schedules.

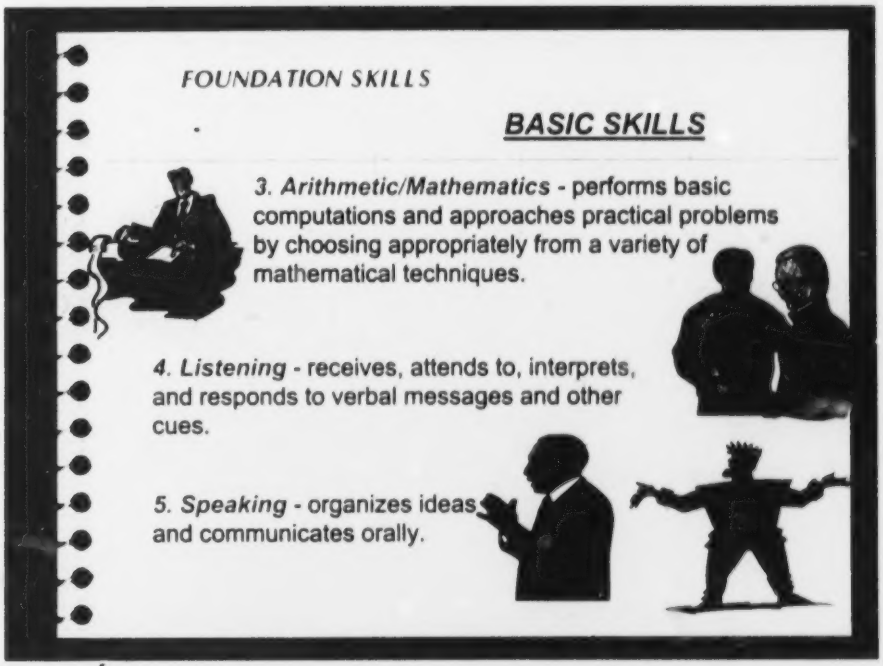
2. Writing - communicates thoughts, ideas, information,and messages in writing and creates documents such as, directions,manuals, reports, and flow charts.



The Foundation Skills could be enhanced every year if students are to build a lifelong learning agenda.

Reading is a skill and an ability it is difficult to get along without in our 21st century. Adults are finding the need to understand what others write about their jobs, careers, avocations, income producing activities, etc. The ability to understand what others write is established in the early school years and is refined during the rest of the school years.

Writing is a skill that is developed in the early school years. The ability to compose thoughts clearly and concisely are abilities that continue to be developed throughout the rest of schooling.


FOUNDATION SKILLS
BASIC SKILLS
3. Arithmetic/Mathematics - performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
4. Listening - receives, attends to, interprets, and responds to verbal messages and other cues.
5. Speaking - organizes ideas and communicates orally.

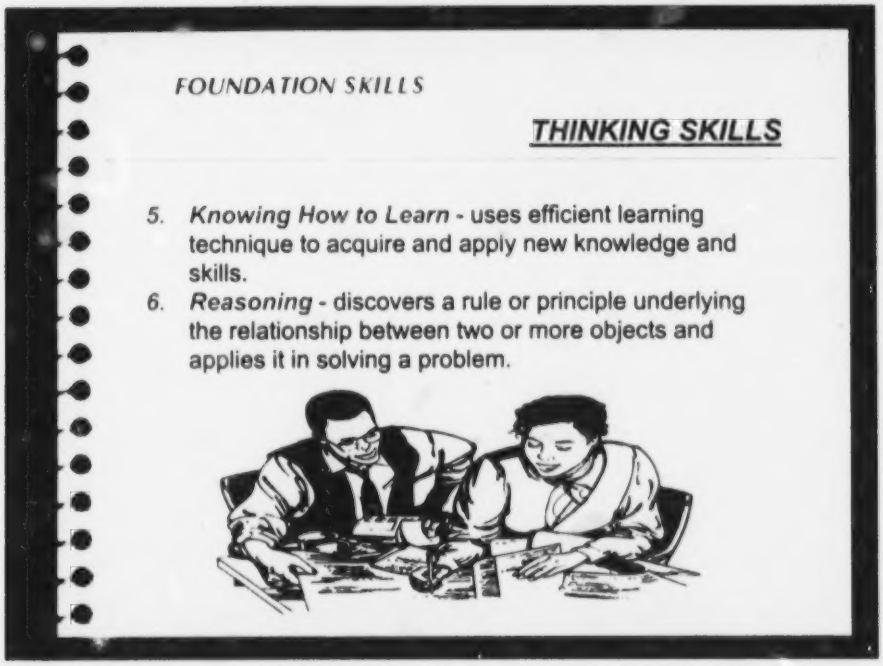
Teachers and students could find strategies to maximize these skills for all learners.

FOUNDATION SKILLS

THINKING SKILLS

1. *Creative Thinking* - generates new ideas
2. *Decision Making* - specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative
3. *Problem Solving* - recognizes problems and devises and implements plan of action
4. *Seeing Things in the Mind's Eye* - organizes and processes symbols, pictures, graphs, objects and other information

Thinking skills are the processing network necessary for success in school-life and in work-life.

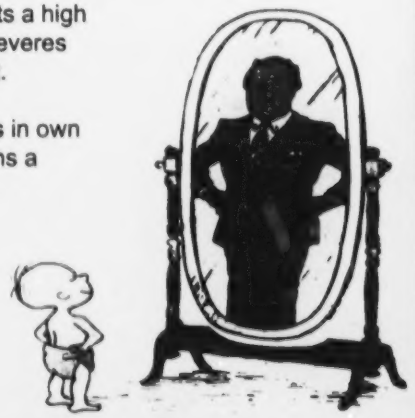

FOUNDATION SKILLS
THINKING SKILLS
5. Knowing How to Learn - uses efficient learning technique to acquire and apply new knowledge and skills.
6. Reasoning - discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem.

Both knowing how to learn and reasoning require perseverance and can be acquired more easily along side of someone else who is also developing the ability to learn and reason.

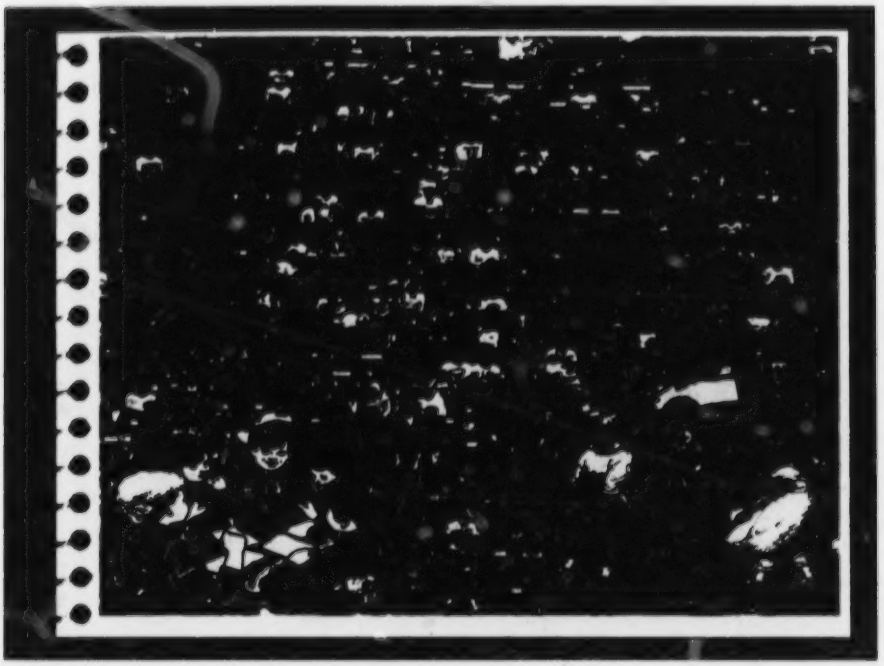
FOUNDATION SKILLS

PERSONAL QUALITIES

1. *Responsibility* - exerts a high level of effort and perseveres toward goal attainment.
2. *Self-Esteem* - believes in own self-worth and maintains a positive view of self.



People who have a high sense of self-worth usually act responsibly towards themselves and others. It is the task of schools to help children see their worth and to help build their positive self-esteem. In order to build positive self-esteem children need many opportunities to see themselves as able in real-world work situations. It would be hoped that one day all children can come to see themselves as capable adults.



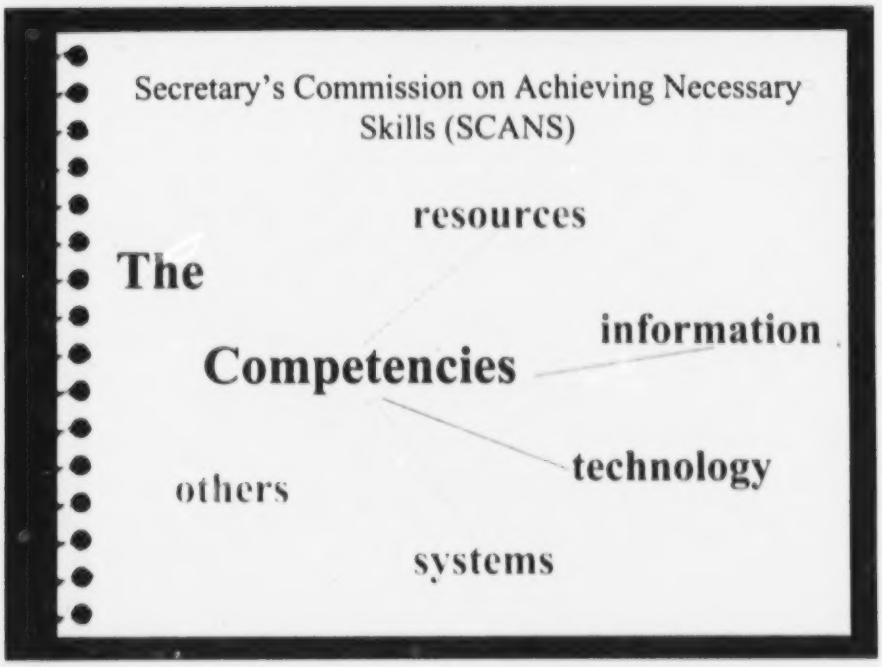
We live in a social world. There are people all around us, and we need to be able to get along with them and work with them toward common goals.

FOUNDATION SKILLS

PERSONAL QUALITIES

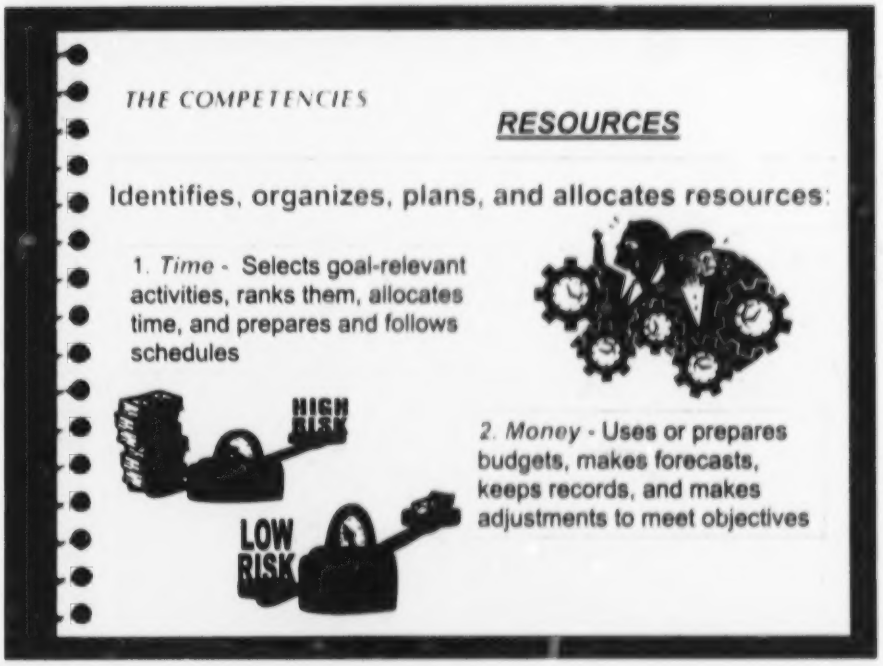
4. *Self-Management* - assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.

5. *Integrity/Honesty* - pursues ethical courses of action.



According to SCANS the competencies that work-life would like school-life to consider and give experiences for children are:

- How to identify, organize, plan, and allocate resources,
- How to work with others,
- How to acquire and use,
- How to understand complex inter-relationships or systems,
- How to work with a variety of technology.


THE COMPETENCIES
RESOURCES
Identifies, organizes, plans, and allocates resources:
1. Time - Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
2. Money - Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
HIGH RISK
LOW RISK

The competencies are labeled resources, interpersonal skills, information, systems and technology. Students need an operational definition of each competency. These competencies can be accommodated within regular units of study. Educators use all of these competencies in their courses of study but frequently do not help learners make real-world connections.

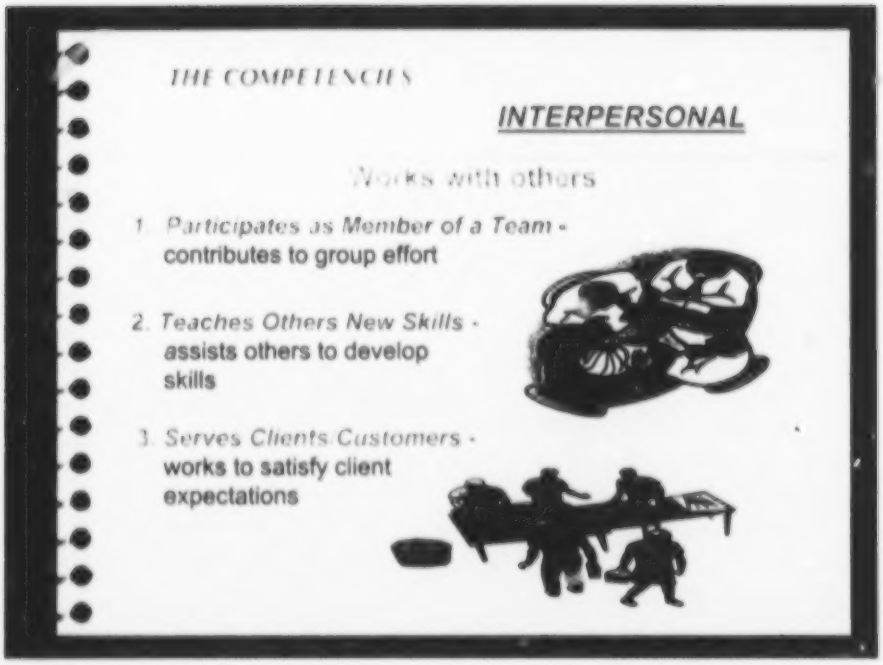
Further explanations of the competencies are on these slides.

THE COMPETENCIES

RESOURCES

3. *Materials/facilities* –
   Acquires, stores, allocates, and uses materials or space efficiently

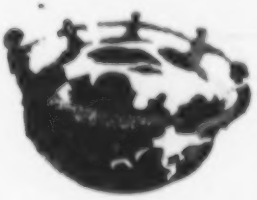
4. *Human Resources* -
   Assesses skills and distributes work accordingly, evaluates performance, and provides feedback


THE COMPETENCIES
INTERPERSONAL
Works with others
1. Participates as Member of a Team - contributes to group effort
2. Teaches Others New Skills - assists others to develop skills
3. Serves Clients/Customers - works to satisfy client expectations

In the world of the 21st century, all of us need to participate as a member of a team in order to solve the global problems so that we can all survive.

Even simple bartering is a matter of satisfying the other person. The client needs to feel that you want him/her there and that he/she is important to your business. Too often attitudes of young people dismiss the clients in front of them in favor of their own thought or social world.

THE COMPETENCIES



INTERPERSONAL

4. *Exercises Leadership* - communicates ideas to justify position, persuades and convinces others, and responsibly challenges procedures/ policies

5. *Negotiates* - Works toward agreements involving exchange of resources and resolves divergent interests

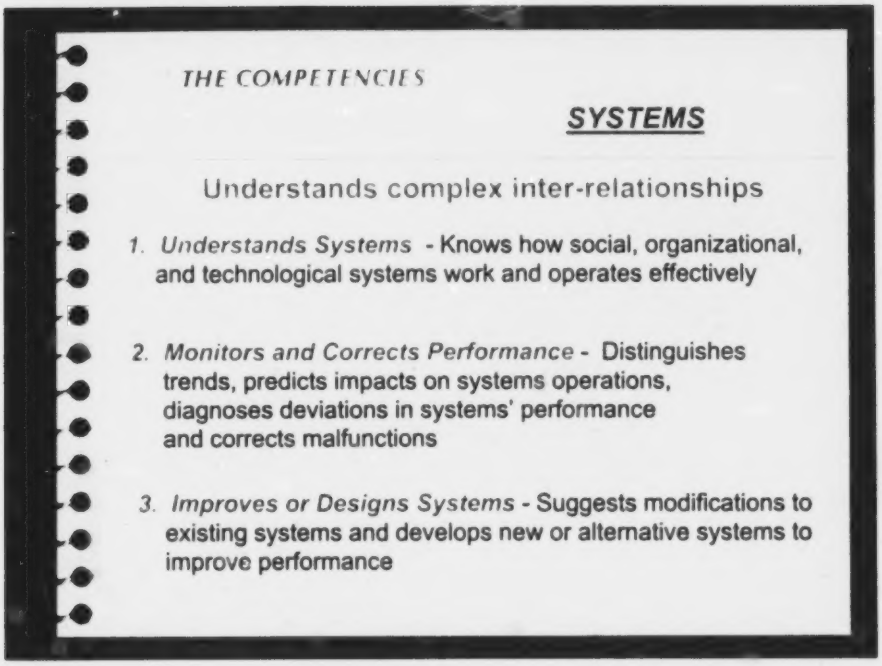
6. *Works with Diversity* - Works well with men and women of diverse backgrounds

THE COMPETENCIES

INFORMATION

Acquires and uses information

1. *Acquires and Evaluates*
2. *Organizes and Maintains*
3. *Uses and Communicates*


THE COMPETENCIES
SYSTEMS
Understands complex inter-relationships
1. Understands Systems - Knows how social, organizational, and technological systems work and operates effectively
2. Monitors and Corrects Performance - Distinguishes trends, predicts impacts on systems operations, diagnoses deviations in systems' performance and corrects malfunctions
3. Improves or Designs Systems - Suggests modifications to existing systems and develops new or alternative systems to improve performance

Systems is a critical concept identified by NCTM (National Council of Teachers of Mathematics) and AAAS--Science for All Americans.

THE COMPETENCIES
TECHNOLOGY
Works with a variety of technologies
1. Selects Technology - Chooses procedures, tools or equipment including computers and related technologies
2. Applies Technology to Task - Understands overall intent and proper procedures for setup and operation of equipment
3. Maintains and Troubleshoots Equipment - prevents, identifies, or solves problems with equipment, including computers and other technologies

This is a match with the Goals 2000 agenda. These technology competencies are not adding to what teachers should be doing but linking the classroom agenda to reality.

School-aged children can learn to choose the technological tools, whether it be a microscope or a computer program, they need to accomplish tasks that mirror real-life tasks.

Secretary's Commission on Achieving Necessary Skills (SCANS)

The Foundation Skills

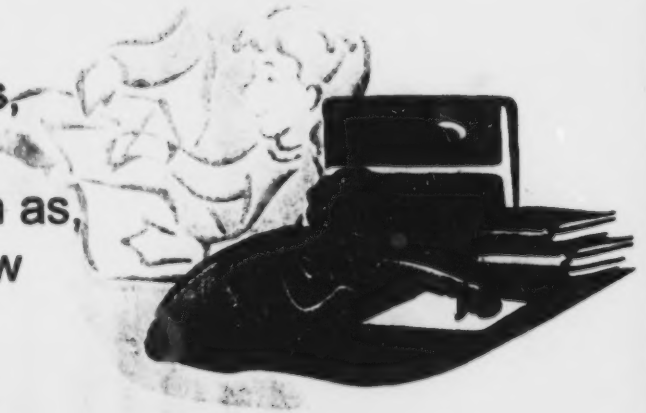
Prepared by Dora L. Bailey

FOUNDATION SKILLS

BASIC SKILLS

1. Reading - locates, understands, and interprets written information in documents such as manuals, graphs,and schedules.

2. Writing - communicates thoughts, ideas, information,and messages in writing and creates documents such as, directions,manuals, reports, and flow charts.



FOUNDATION SKILLS

BASIC SKILLS

3. Arithmetic/Mathematics - performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.

4. Listening - receives, attends to, interprets, and responds to verbal messages and other cues.

5. Speaking - organizes ideas and communicates orally.

FOUNDATION SKILLS

THINKING SKILLS

1. ***Creative Thinking*** - generates new ideas
2. ***Decision Making*** - specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative
3. ***Problem Solving*** - recognizes problems and devises and implements plan of action
4. ***Seeing Things in the Mind's Eye*** - organizes and processes symbols, pictures, graphs, objects and other information

FOUNDATION SKILLS

THINKING SKILLS

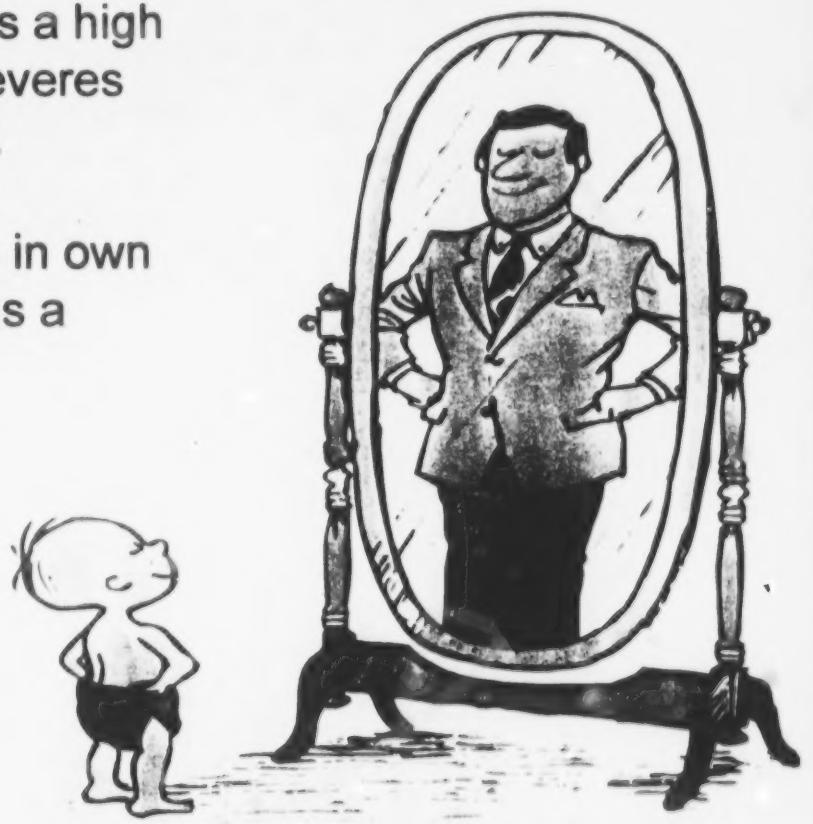
5. ***Knowing How to Learn*** - uses efficient learning technique to acquire and apply new knowledge and skills.
6. ***Reasoning*** - discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem.

FOUNDATION SKILLS

PERSONAL QUALITIES

1. ***Responsibility*** - exerts a high level of effort and perseveres toward goal attainment.

2. ***Self-Esteem*** - believes in own self-worth and maintains a positive view of self.



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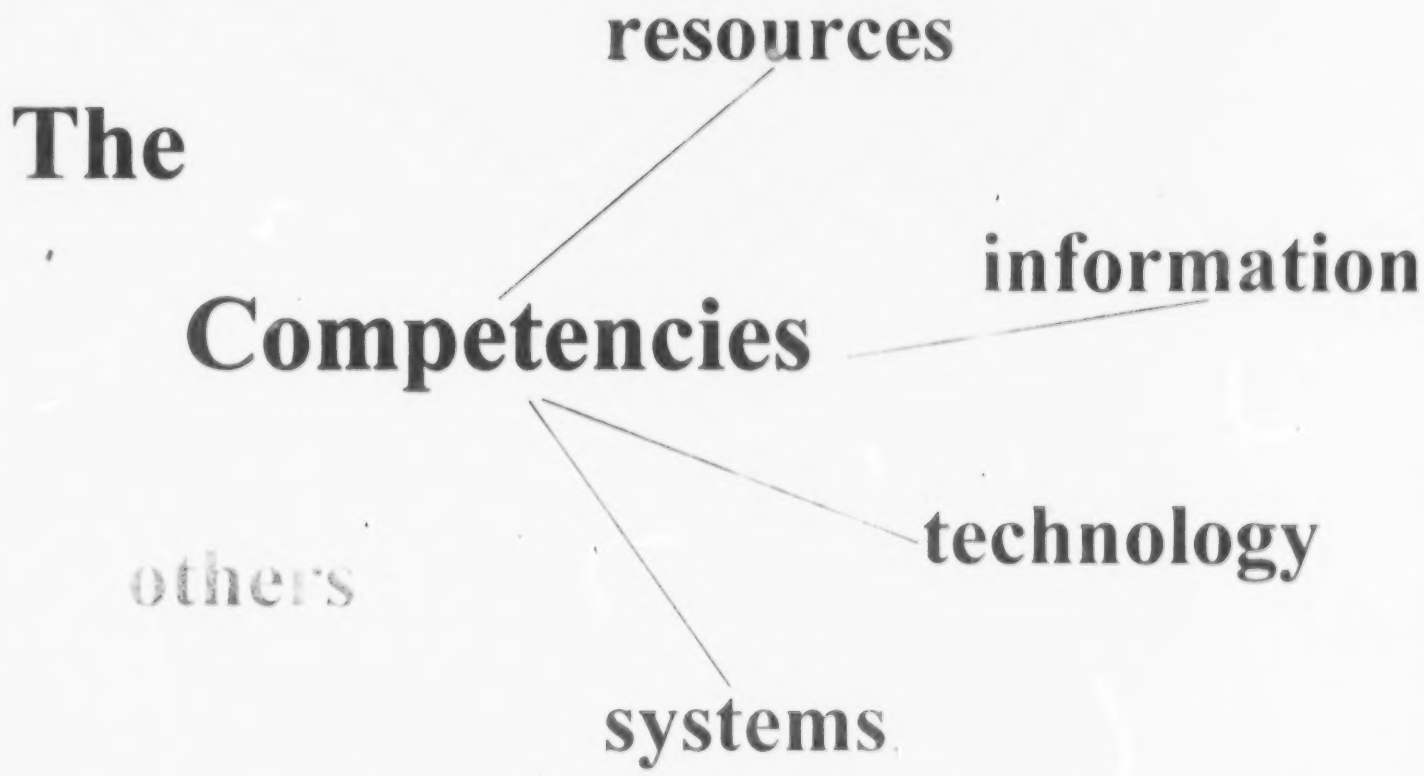
FOUNDATION SKILLS

PERSONAL QUALITIES

4. *Self-Management* - assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.

5. *Integrity/Honesty* - pursues ethical courses of action.

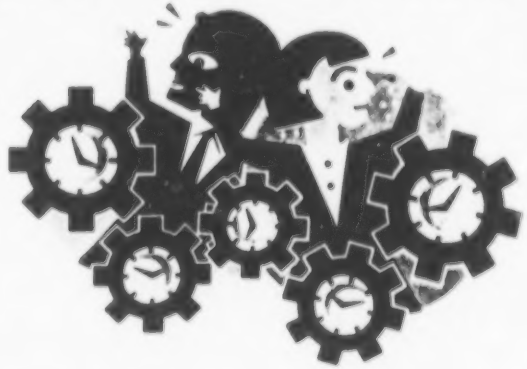
Secretary's Commission on Achieving Necessary Skills (SCANS)



THE COMPETENCIES

RESOURCES

Identifies, organizes, plans, and allocates resources:



Time - Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules

Money Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives

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THE COMPETENCIES

RESOURCES

3. Materials facilities - Acquires, stores, allocates, and uses materials or space efficiently

4. Human Resources - Assesses skills and distributes work accordingly, evaluates performance and provides feedback

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THE COMPETENCIES

INTERPERSONAL

Works with others

1. Participates as Member of a Team -
contributes to group effort

2. Teaches Others New Skills -
assists others to develop skills

3. Serves Clients/Customers -
works to satisfy client expectations

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THE COMPETENCIES

INTERPERSONAL

communicates ideas to justify position, persuades and convinces others, and responsibly challenges procedures/ policies

Negotiates - Works toward agreements involving exchange of resources and resolves divergent interests

Works with Diversity -
Works well with men and women of diverse backgrounds

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THE COMPETENCIES

INFORMATION

Acquires and uses information

1. Acquires and Evaluates
2. Organizes and Maintains
3. Uses and Communicates

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THE COMPETENCIES

SYSTEMS

- Understands complex inter-relationships

Understands Systems - Knows how social, organizational, and technological systems work and operates effectively

Monitors and Corrects Performance - Distinguishes trends, predicts impacts on systems operations, diagnoses deviations in systems' performance and corrects malfunctions

Improves or Designs Systems - Suggests modifications to existing systems and develops new or alternative systems to improve performance

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THE COMPETENCIES

TECHNOLOGY

Works with a variety of technologies

1. Selects Technology - Chooses procedures, tools or equipment including computers and related technologies

2. Applies Technology to Task - Understands overall intent and proper procedures for setup and operation of equipment

3. Maintains and Troubleshoots Equipment prevents, identifies, or solves problems with equipment, including computers and other technologies

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Mind Mapping

Dora L. Bailey
Youngstown State University

Mind Mapping

Mind Mapping is a graphic representation of how ideas, concepts, subconcepts, and supporting details relate and connect. The main concept, the experience under discussion or idea under study, fills a central spot on a piece of paper. Relating concepts and subconcepts radiate from this central idea and supporting detail trail from these subconcepts (See example on page 3). It is a way for people to construct meaning from an experience or an idea under study.

Mind Mapping is particularly dynamic and effective in small groups. All people filter their experiences through their existing schema, and since everyone's schema is necessarily different, all bring valuable perspectives to a small group's examination of an experience or idea.

Included on page 4 are two examples of Mind Maps that were completed under this process. One shows a great amount of detail. Although the other does not show detail the quality of discussion the group maintained was the highest of four groups that created Mind Maps. Quantity does not always represent the highest quality.

Following are the six simple steps for facilitating Mind Mapping after an experience or study of an idea.

1. Ask participants to write words or phrases that come to mind about the experience or idea being studied.
2. Share all of the above information and rationale on Mind Mapping including an example of Mind Mapping shown on page 3. This gives participants a clear idea of the task at hand.
3. Divide participants into groups of 3-5 and have the groups share their words and phrases for about 5 minutes. This begins the recognition of the different perspectives represented in the group. In a natural idea processing fashion, people will note

similarities and difference; they will begin to accommodate each other and leadership will emerge.

4. Give time limits for accomplishing artificial segments of the Mind Mapping. Even though the segments are artificial and the groups will probably not follow the segmentation, the warning of time segments passed and what should have been accomplished serves to force consensus and move the task forward.
    a. Allow 5 minutes to decide what should go in the center as an organizing concept. In the examples (page 4) the organizing concepts were given to the participants as a modification of Mind Mapping.
    b. Allow 10 minutes to decide on the subconcepts
    c. Allow 10 minutes to decide on the supporting details.
5. Facilitate all of the groups by inserting yourself and asking for a report on progress as well as asking key questions of the group to move them forward in their thinking.
    a. Enter each group within the first 5 minutes.
    b. Reenter the group that is slow getting started first.
    c. Do not stay more than 4 minutes in any group at any one time.
6. Share graphic Mind Maps with the whole group. It is most important that each group sees how each other group chose to organize their Mind Maps. It is also important that the group share their thinking processes as they made decisions. This sharing process enriches the experience and has been reported as particularly impactful and memorable.

Example of Mind Mapping
To Share with Groups

Mind Map

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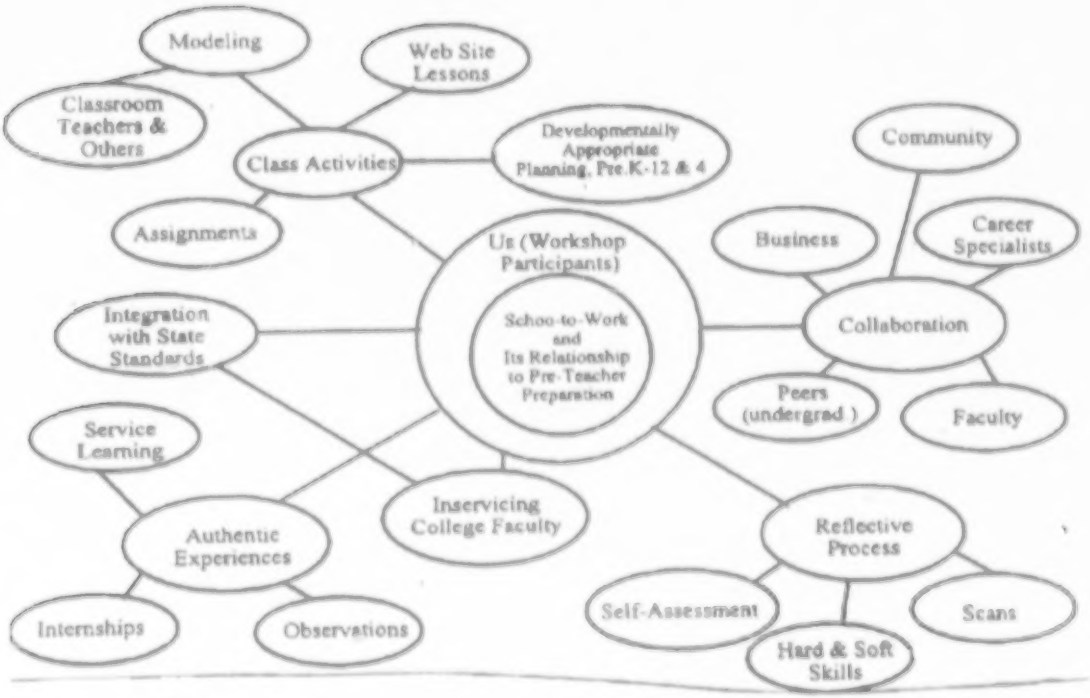
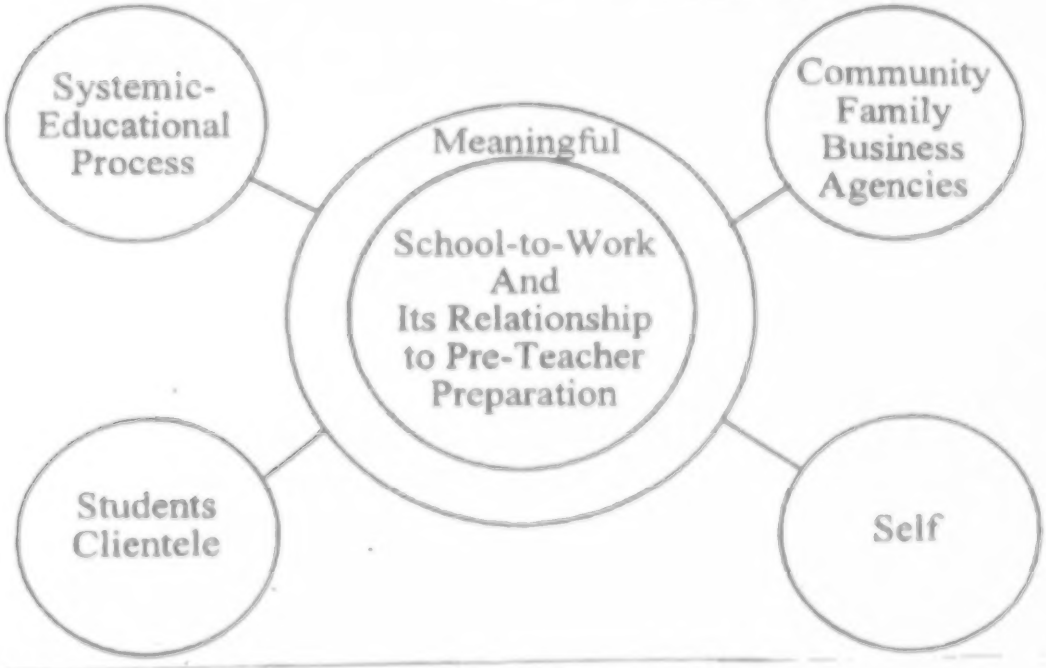
EXAMPLES OF MIND MAPS CREATED IN A STW CONFERENCE





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Sleepy River Hollow: The Dawning of a New Day

A Skit

Robert G. Berns
Bowling Green State University

Sleepy River Hollow: The Dawning of a New Day
A Skit

Opening reader:

As a faculty work team, we'd like to present, for your enjoyment, "Sleepy River Hollow: The Dawning of a New Day," starring:

_____as Department Chair Dorky Hogwash

_____as Prima Donna

_____as Negative Nelly

_____as Sweet Sam

_____as Faculty Fannie

_____as Learning Lenny

_____as Counseling Callie

_____as Positive Pete

The Scene:

The scene is the Curriculum and Instruction Department at Sleepy River in Sleepy, Ohio. A new assistant professor who has visions of moving Sleepy River into the next century whether it wants to or not, has arrived for the first time at the department's annual faculty retreat at Sleepy River Hollow State Park. The meeting began about a half hour ago and the faculty are brainstorming ideas for improving their teacher preparation programs. Prima Donna has arrived late.

Dept. Chair:

Hi Prima, did you have difficulty finding the park?

Prima Donna:

Oh no, I was just putting finishing touches on my presentation for the big Teacher Education Conference. You know, that conference is ranked as the most important in all of education. I'm just sure I'll win the prize for the best presentation at the conference. Its based on my dissertation, you know. That's why I haven't been around lately.

Dept. Chair:

Oh, why that's just terrific! You're off to a good start (with eyes rolling).

Prima:

Yes, the presentation is on School-to-Work.

Faculty Fannie:

Oh, Prima, if you want to get involved with vocational education, you need to go over to the Family and Consumer Sciences Department. Or maybe Business Education department across campus. That would be good interdisciplinary activity.

Dept. Chair:

But be sure it falls into your professional development plan that is due next month

Prima:

Oh no, Dorky, School-to-Work is not the same thing as vocational education

Dept. Chair:

Its not?

Prima:

No, School-to-Work is involved with all education.

Negative Nelly:

Oh yea, right--who told you that? The state Department of Education?

Prima:

No, actually, schools are really getting involved in this. The intent of School-to-Work is to develop in all students the competencies ... confidence,...and connections that can lead to successful careers and responsible citizenship.

Negative Nelly:

Sounds tc me like another name for tracking kids and forcing them into career decisions way too early.

Prima:

No, no, no--the students don't have to make career decisions until later in school--and they can always change their minds, but at least they've gotten a start at ...

Learning Lenny:

Prima, this may be true, but its not going to fly--you surely know, even though you've been spending most of your time in the Ivory Tower of late, that all that counts these days are test scores--and spending time on all this work stuff will take time away from the students learning what they really need to know--math, and English, and science, and social studies.

Prima:

No, we've been finding that this will actually help the students learn that content better ...

Faculty Fannie:

Dorky, we need to get on with the agenda--we're supposed to be thinking about improving our teacher education programs at this retreat--this has nothing to do with that.

Dept. Chair:

Yea, I think you're right.

Sweet Sam:

Wait a minute, I think Prima may be on to something here--let's find out more about it.

Prima:

Oh, thank you Sweet Sam. I'm really excited about it--when I finished my course work and passed my exams, I worked as a School-to-Work coordinator while I wrote my dissertation.

Negative Nelly:

Oh brother, here we go again, using tax money to fund someone to do a dissertation.

Prima:

No, it was a half time job, but I actually did I 00% work for half the pay.

Negative Nelly:

Sucker (under her breath).

Prima:

Yet, it was so exciting--and related to School-to-Work which was my topic of my dissertation--that I went ahead and did it anyway.

Learning Lenny:

Are we going to spend this entire retreat on secondary? We need to spend some time on elementary too, you know.

Dept. Chair:

Oh, you mean early childhood and middle childhood--yea, we do need to do that. Are we done talking about secondary now?

Prima:

NO! School-to-Work isn't just for secondary.

Negative Nelly:

Here she goes again--don't tell me they're gonna start training kids for jobs when they're in third grade now--this is really getting ridiculous.

Prima:

No, School-to-Work isn't just training students for occupations. Sure, that may be part of it for some students later in school, but School-to-Work is for **all** students and it includes learning about various careers, learning academic content as it relates to various kinds of professions and other careers--and it begins at the start of a child's education and moves on through adulthood.

Negative Nelly:

Awe, all this school and work stuff--You know what I think? I think this is a subversive plot to force kids into jobs whether they want them or not.

Sweet Sam:

No, I don't think so. I'll tell you what. I sure wish my daughter had had a better idea of what she wanted to do career-wise before we spent thousands and thousands of dollars on her education. That money just flew out of our pockets before she discovered something she was interested in.

Counseling Callie:

That's just because you weren't smart enough to have her come here where there's a tuition waiver. Well, I don't see where this pertains to me because my area is counseling, not teacher education.

Dept. Chair:

You don't? Then maybe you'd like to take a professional development leave so you can learn more about the relationship between counseling and career development.

Learning Lenny:

Maybe we better think about how we can better prepare our teacher education students for working in a system that has implemented school-to-work. Have any other colleges or universities been doing this?

Prima:

Well, in my studies I found some colleges are starting to take a look at it. I'm not from Ohio, but I discovered, as I was reviewing the literature for my dissertation, that a group of faculty from several universities in Ohio just participated in a conference on integrating School-to-Work into preservice teacher education. I spoke with one of them and she said this was the second conference and they are hoping to have additional conferences in the next couple years for education faculty. Perhaps some of us could go next summer.

Dept. Chair:

That sounds good, but maybe we should start on this now since, after all, we do pride ourselves on being on the cutting edge. I think we need to do something on School-to-Work.

Prima (getting all excited!)

Oh, yes yes yes, that would be just great--and so needed--I'll teach a course on it. Could it be a graduate-level course?

Dept. Chair: (shocked!)

Prima, I thought you said in the interview that you were mostly interested in undergraduate education. *(looking puzzled)*

Prima:

Oh yes, that's right. Well then, I'll teach a course on it for undergraduates. Can it be an honors section?

Negative Nelly:

No way--there's no room in the degree program for yet another required course. Their programs are jammed up, thanks to the new state teacher licensure standards, and our teacher education core, and the College's general education requirements. Actually, I think School-to-Work should be interwoven into various places in the curriculum. And besides, you know the college is making a big push on getting students through the program in 4 years.

Faculty Fannie:

That seems to make more sense anyway, doesn't it?

Prima:

And, I found in my dissertation that new teachers tend to use contextual learning as it relates to careers more effectively if they have worked in the recent past in an internship at a worksite outside schools.

Positive Pete:

Well, perhaps we could have students spend some time at a workplace other than in schools as a part of their field experience requirements.

Prima:

Oh, that's just great. Neat idea. Would you like to make a presentation with me on that idea?

Positive Pete:

Well, first we need to do some research on it.

Prima:

Oh yes. Can the department pay for the data collection? You know, there's a teacher education conference in Honolulu next year and, if we get the research done on time, the department can pay for us to go to it! You know, my doctoral program advisor gets his way paid to go all over the world every year!

Dept. Chair:

Well, Prima, we don't have that kind of money here, but, if you get a paper accepted at a professional meeting, you can apply for a travel grant. Perhaps we need to further discuss what our preservice teacher education students should get out of our program relative to School-to-Work.

Sweet Sam:

It seems to me that they should learn how to connect the content they teach with the workplace.

Counseling Callie:

They also need to learn something about careers, such as the educational requirements needed by various careers related to their content area.

Faculty Fannie:

I hope they can develop positive attitudes toward work and be able to contribute toward the development of those SCANS skills we've been hearing a lot about.

Negative Nelly: *(attitude changing):*

Well, if we're going to do this, we had better include how to find appropriate resources and how to design lessons that will include learning in a real world context.

Learning Lenny:

Gosh, I see where we could infuse this throughout our curriculum--like when they are learning to write objectives, they could write them in this context and prepare instructional strategies with this in mind.

Counseling Callie:

And, you know, when they learn about authentic assessment, this is a natural fit.

Positive Pete:

And when we talk about parental and community involvement in schools, we can stress the growing need for partnerships among the students, parents, faculty, higher education, business and industry, organized labor, and community-based organizations.

Learning Lenny:

One thing we haven't talked about is the need to explore the relationship between School to-Work and our state curriculum models.

Faculty Fannie:

And what about the new licensure standards? I think we need to look at School-to-Work in relation to the 10 performance areas our new teachers will be assessed on during the entry-year program.

Counseling Callie:

And, of course, with my interest in career development, perhaps I could do a study to look at the relationship of that to School-to-Work.

Sweet Sam:

And, above all, we all really should role model these principles and practices throughout our courses and program.

Dept. Chair:

Gee, it looks like we've brainstormed a lot of intriguing ideas here. Perhaps this could become the theme for the year where we all move together toward a common goal.

Prima:

Now I see why I accepted the position to teach at this college. You're all such quick learners and progressive thinkers. I'm so excited to be here. Does anyone need their car washed? After all, **I've just got to get tenure!**

C:\STW\SKIT98.WPD

Integrating Contextual Learning School-life with Work-life

Examples

Dora L. Bailey
Youngstown State University

Integrating Contextual Learning
School-life with Work-life

Examples

Developing career and work awareness includes creating an environment where students see connections between school and the real world. Some things that teachers can do to develop career awareness include:

1) develop in children an awareness of the world of work and of how their school learning experience is connected to their future;

2) build connections for students between academic skills and the future;

3) insure lessons have some real relation to the real world;

4) introduce students to "real life" jobs including options that may not be traditional for the students' gender, race, or ethnicity;

5) simulate and/or model "real world" activities such as managing checking account, voting, participating in city governance, etc. (Contextual Learning PPP, Notes page 24)

In addition, basic skills are always in need of reinforcing in children no matter what the age. These basic skills take on more importance to children when they know which real world experience the skills are attached. Thus schooling must become contextualized; we have decontextualized schooling and deconstructed schooling to the point that schooling barely makes sense to the children in it. Contextual learning can be a rich way to have children experience and develop basic skills. According to the SCANS (Secretary's Commission on achieving Necessary Skill: A SCANS report for America 2000), the basic skills in relation to work and careers are:

1) Reading – locates, understands, and interprets written information in documents such as manuals, graphs, and schedules.
2) Writing – communicates thoughts, ideas, information, and messages in writing and creates documents such as directions, manuals, reports, and flow charts.
3) Arithmetic/Mathematics – performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
4) Listening – receives, attends to, interprets, and responds to verbal messages and other cues.
5) Speaking – organizes ideas and communicates orally.

These basic skills are represented in the curriculum guides of all districts. It seems that all agree on what the tasks of schooling are. Debates occur on how to have children experience these basic skills – contextualized or decontextualized.

I have chosen the teaching technique, *field trip*, to illustrate throughout grade levels as an ideal contextual experience for children. *Field trips* have the advantage of being the perfect forum for exercising thinking skills: creative thinking, decision making, problem solving, seeing things in the mind's eye, knowing how to learn, and reasoning. Also, the personal qualities, which SCANS identified as important in the world of work, are exercised: responsibility, self-esteem, sociability, self-management, and integrity/ honesty. Through *field trip* debriefing and simulation children exercise their understanding of systems and interpersonal relationships. Consider the way that I suggest *field trips* play out in the pages following. I suggest that you flip to your grade level after you read the Early Childhood, Middle Childhood, or Adolescent Childhood introduction.

Field Trips

A common technique used to accomplish awareness raising about careers and the world of work is the field trip. However, teachers rarely brief and debrief their children after the field trip. I am suggesting more than a briefing and a debriefing. I am suggesting getting children to play the role of observer, interviewer, investigator, and even problem solver while they are on a field trip. This means that the teacher and the children need to research the site of the trip before going and need to plan the visit and the interviews of the employees at the site.

I am also suggesting that a field trip is greatly enhanced if the children know that they are going to simulate the site upon their return. All of the basic skills, thinking skills, personal qualities, and some of the competencies described in the SCANS can be experienced through a purposeful simulation of a field trip site. The SCANS is a list and description of the skills and abilities that employers identified as desirable in an employee. (See the SCANS PPP section.)

When children reproduce the system and "business" of the field site they visited, they get an opportunity to authentically exercise that system and "business". The children have to adapt the system and procedures to be appropriate for their setting. They get to exercise their basic skills as they operate the "business" in a school setting. Actually, every school setting can be about children acquiring roles as they move through their school year. Field trips help children know how the roles work in the "real world".

In the following pages are examples of field trips, the preparation for those trips, and the follow up of those trips for each grade level.

Early Years in School

In the early years teachers can help children raise their awareness of the world around them. Children particularly need to open their eyes to the jobs that adults do so that they can begin to assess their own strengths in relation to real jobs as they develop their abilities.

1st Grade – Post Office Field Trip

The end goal here is to operate a Post Office for the school and particularly for the classroom. Children need to be aware of this goal because it changes how they see the field site when they visit. They need to research the Post Office before they go so they can plan for interviews with specific questions designed to give them information so that they can set up and run a Post Office in their room. Ideally, eventually, they would move to running a Post Office for the entire school.

Children need to be prepared to take notes as they tour the facility. Learning partners take responsibility for interviewing a Postal employee after a tour of the facility. Questions that might arise: What kinds of jobs are at the Post Office? Why do we need a Post Office? How do letters get from one city to another? What does a Postal employee need to know in order to do their job? Possible answers could be: map of community, how an address works, different kinds of mailings, how routes work, etc.

Once the children return from the field trip, they need to debrief. They need to share what they learned. The teacher can facilitate whole class note keeping on the board, an overhead, or poster paper. After sharing what they learned the children need to consider how to begin to set up their post office. At this level they need to begin small, with their classroom. This is where they adapt some of the information that they learned

on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating a classroom Postal system, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

2nd Grade – Restaurant Field Trip

The end goal and process here are the same as in the previous example of a Post Office Field Trip. The end goal here is to operate a bonafide Restaurant, at a 2nd grade level, e.g. "Cookies & Veggies Galore" for the school, at least for the classroom. Children need to be aware of this goal because it changes how they see the field site. They need to research the Restaurant business and particularly the restaurant they will be visiting, whether it be McDonald's or the local "La Rocca's", before they go, so they can plan for interviews with specific questions designed to give them information so that they can set up a Restaurant in their room and run it. Ideally, they would move to running a Restaurant that the entire school could access.

Children need to be prepared to take notes as they tour the facility. Pairs of children can act as learning partners take responsibility for interviewing a Restaurant employee after a tour of the facility. Questions that might arise: What kinds of jobs are at the Restaurant? Why do we need Restaurants? How does food get from the delivery of ingredients to food on a table? What does a restaurant person need to know in order to do their job? Possible answers could be: knowing suppliers of ingredients, writing and reading recipes, interpersonal skills, following directions, basic math to calculate a profit, problem solving of what to make considering the resources available, etc.

Once the children return from the field trip, they need to debrief. They need to share what they learned. The teacher can facilitate whole class note keeping on the board, an overhead, or poster paper. After sharing what they learned the children need to consider how to begin to set up their Restaurant. At this level they need to begin small, setting up a restaurant within their classroom. This is where they adapt some of the information that they learned on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating their classroom Restaurant, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

3rd Grade – Bank Field Trip

The end goal and process here are the same as in the previous examples of a Post Office and a Restaurant Field Trip. The end goal here is to operate a bonafide Bank, at a 3rd grade level, e.g. "Third Commerce Bank" for the school, at least for the classroom. Children need to be aware of this goal because it changes how they see the field site when they visit. They need to research the Bank business and particularly the Bank they will be visiting, whether it be Bank One or the local, Mahoning Savings & Loan, before they go, so they can plan for interviews with specific questions designed to give them information so that they can set up a Bank in their room and run it. One of the decisions that needs to be made is whether to use real money or set up their own currency. Ideally, they would move to running a Bank that the entire school could access.

Children need to be prepared to take notes as they tour the facility. Pairs of children can act as learning partners take responsibility for interviewing a Bank employee

after a tour of the facility. Questions that might arise: What kinds of jobs are at the Bank? Why do we need Banks? How does money flow through a Bank? What does a Bank employee need to know in order to do their job? Possible answers could be: knowing basic math in order to count the money and balance books, interpersonal skills as tellers work with people, following directions, problem solving of what services to offer in a classroom or in a school, etc.

Once the children return from the field trip, they need to debrief. They need to share what they learned. The teacher can facilitate whole class note keeping on the board, an overhead, or poster paper. After sharing what they learned the children need to consider how to begin to set up their Bank. At this level they need to begin small, with their classroom. This is where they adapt some of the information that they learned on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating a classroom Bank, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

4th Grade – Small Business Field Trip

The end goal and process here are the same as in the previous examples of a Post Office, Restaurant, or Bank Field Trip. The end goal here is to operate a bonafide Small Business, at a 4th grade level, e.g. "Personalized Refrigerator Magnets" for the school, at least for the classroom. Children need to be aware of this goal because it changes how they see the field site when they visit. They need to research the nature of small businesses and particularly the Small Business they will be visiting, whether it be "Cards & Collectables" or the local printing company, before they go, so they can plan for

interviews with specific questions designed to give them information, so that they can set up a Small Business in their room and run it. Ideally, they would move to running a Small Business that the entire school could access.

Children need to be prepared to take notes as they tour the facility. Pairs of children can act as learning partners take responsibility for interviewing a Small Business employee after a tour of the facility. Questions that might arise: What kinds of jobs are at this "Small Business"? Why do we need this "Small Business"? How does the business get its materials and how do these become the product that is sold? How do they market their product? What does a Small Business person need to know in order to do his/her job? Possible answers could be: knowing suppliers of materials, interpersonal skills, following directions, basic math to calculate a profit, problem solving of what to make, considering the resources available, etc.

Once the children return from the field trip, they need to debrief. They need to share what they learned. The teacher can facilitate whole class note keeping on the board, an overhead, or poster paper. After sharing what they learned the children need to consider how to begin to set up their Small Business. At this level they need to begin small, with their classroom. This is where they adapt some of the information that they learned on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating a classroom Small Business, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

Middle Years in School

In the middle years teachers can help children experience the world around them with heightened awareness. Children of this age are ready to attend to details and are ready to begin to synthesize knowledge and experiences. They are naturally curious about the jobs that adults do, as evidenced by their many pointed questions about the way adults spend their time. They are ready to begin to assess their own strengths in relation to real jobs as they develop their abilities in and out of school.

In this section, I intend to continue to use the method of Field Trip to illustrate possibilities for highly contextual learning for children of this age. I intend to delineate only the first example. Then, I will merely suggest different topics for the different grade levels with notes about the issues and concepts of interest and importance.

Generally speaking, middle age children can benefit from immersion, demonstration, and practice/employment (Brian Cambourne terms) in all of the Basic Skills mentioned in the Early Years section and in the SCANS. In addition, children of this age are ready to consider the SCANS competencies (in SCANS PPP, pp. 41-47) of:

1) Resources – identifies, organizes, plans, and allocates resources of:
    a. time – selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules;
    b. money – uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives;
    c. materials/facilities –acquires, stores, allocates, and uses materials or space efficiently;

d. human resources – assesses skills and distributes work accordingly, evaluates performance and provides feedback.

2) Information – acquires and uses information:

a. acquires and evaluates information

b. organizes and maintains information

c. uses and communicates information

3) Technology – works with a variety of technologies:

a. selects technology – chooses procedures, tools or equipment including computers and related technologies;

b. applies technology to task – understands overall intent and proper procedures for setup and operation of equipment;

c. maintains and troubleshoots equipment – prevents, identifies, or solves problems with equipment, including computers and other technologies.

5th Grade – Small Business Field Trip

I delineated Small Business field trip at the fourth grade level, but this kind of field trip can be used in the fifth grade again. Fifth graders are ready to refine what they have experienced earlier. We need to give them the opportunity to be employed several times in the same kind of activity so that they can deepen their understanding of complex processes, such as a small business. Actually, because of the broad nature of this category, it can be used many times from this point until high school graduation. The end goal here is to operate a bonafide Small Business, at a 5th grade level for the school, e.g. "Express Mail Service, or "Personal Videotapes of Class Presentations". Children need to be aware of this goal because it changes how they perceive the field site when they visit.

They need to research the nature of small businesses and particularly the Small Business they will be visiting, whether it be "Cards & Collectables" or the local printing company, before they go, so they can plan for interviews with specific questions designed to give them information, so that they can set up a Small Business in their room and run it. Ideally, they would move to running a Small Business that the entire school could access.

Children need to be prepared to take notes as they tour the facility. Pairs of children can act as learning partners take responsibility for interviewing a Small Business employee after a tour of the facility. Questions that might arise: What kinds of jobs are at this "Small Business"? Why do we need this "Small Business"? How does the business get its materials and how do these become the product that is sold? How do they market their product? What does a Small Business person need to know in order to do their job? Possible answers could be: knowing suppliers of materials, interpersonal skills, following directions, basic math to calculate a profit, problem solving of what to make considering the resources available, etc.

Once the children return from the field trip, they need to debrief. They need to share what they learned. At this level the children are ready to debrief in small groups before they come to debrief in the whole class. As a part of the small group debriefing should be: questions answered, questions not answered, further questions, follow up questions, etc. The teacher's role is one of small group facilitator and resource person. In addition the teacher's role during whole class debriefing is one of note keeping - on the board, an overhead, or poster paper. After sharing what they learned, the children need to consider what research they still need to do, how to follow up on interviews, and how to begin to set up their Small Business, define their clientele, etc. This is where the children

adapt some of the information that they learned on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating a classroom Small Business, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

6th & 7th Grade – Advertisement Agency Field Trip

I chose Advertisement Agencies for this level since children of this age have enough experience with advertisements to consider how advertisements are manipulating their desires – their thinking. Sixth graders are ready to consider propaganda techniques. They can study these techniques before they go on a field trip to an Advertisement Agency. This will help them plan for what to look at, and for how to interview and what questions to ask during interviews. At this age they are ready to consider how to ask their questions of whom. Asking questions of the owner would be different than asking questions of a employee or of a client. The whole idea of different audiences and different roles is very pertinent at this age.

Seventh graders are ready to exercise divergent thinking and create "new" ways and ideas for advertising. Their whole emphasis in study and field trip would be to identify what is already being done and "invent" new ways. Divergent thinking is very age appropriate since this is the physical stage in which their whole biological system is being 'rewired' – "the hormonal dump stage". Set ideas of just a few months ago become open to questions and creative thinking. This is the beginning of the age of entrepreneurial birth. If children at this age are encouraged to perceive new possibilities, we will be producing adults who see new possibilities.

8th Grade –Social Agency Field Trip

I chose Social Agencies for this level since children of this age have enough experience with emotional and physical trauma in themselves and in their community to become depressed. At this age children have a tendency to think there is not hope, to believe that there is no way out when the going gets tough. Because of the legacy of the "hormonal dump", children of this age tend to personalize every tragedy that occurs in their community. If a classmate's mother dies, many of the children start to brood on such thoughts as, "What if my mother died? She could die anytime for any reason; where would I be; what would I do?", etc. Eighth graders need to study places that are set up to help with emotional quandaries. They can study these agencies even before they go on a field trip to a Social Agency so they can choose from which agency they would benefit the most. Pre-study of Social Agencies will help them plan for what to look at, and for how to interview and what questions to ask during interviews. At this age they know what questions they need answered most and they are good as asking the difficult questions of adults when given the chance. They understand that asking questions of the owner or director would be different than asking questions of an employee or of a client. The whole idea of different audiences is a skill that this age child has been honing for several years.

It is always necessary to consider the developmental stage of the children when considering a field trip. Too often teachers only consider the content under study. Children are much more than content sponges. Educators have a responsibility, in today's world, to educate the whole child, not just the cognitive part of the child. Both content and developmental focuses can be considered when constructing a field trip.

Adolescent Years in School

In the adolescent years teachers can help children see how they fit into the world around them. I refer to high school people as children here since too many teachers are apt to treat this age child as they would treat an adult. If these children were the adults they would like to be, and the adults that we tend to inconsistently treat them as, then they would not be in high school. Graduation from high school is one of the rights of passages into adulthood. Children of this age are concerned, however, about how they will fit into the adult world – the world of work especially. This age child can synthesize knowledge and experiences and make leaps of judgment and come to conclusions that are not always appropriate. They assess their own strengths in relation to real jobs and usually feel insecure since they do not know enough about the total picture of any employer or job.

In this section, I intend to continue to use the method of Field Trip to illustrate possibilities for highly contextual learning for children of this age. I intend to delineate only the first example. Then, I will merely suggest different topics for the different grade levels with notes about the issues and concepts of interest and import.

Generally speaking, adolescent age children can benefit from practice/ employment (a Brian Cambourne term) in all of the Basis Skills mentioned in the Early Years section and in the SCANS. Through employment, basic skills become more automatic and the time to produce them automatically reduces. This age child is very equipped to build on the skills learned during middle school, particularly those identified in the SCANS as thinking competencies, personal qualities, use of resources, interpersonal competencies, use of information, and use of technology. In addition, this

age is ready to consider the SCANS competency, Systems, which deals with understanding complex inter-relationships, (See SCANS PPP section, p. 46):

a) understands systems – knows how social, organizational, and technological systems work, and operates effectively;

b) monitors and corrects performance - distinguishes trends, predicts impacts on systems operations, diagnoses deviations in systems' performance, and corrects malfunctions;

c) improves or Designs Systems – Suggests modifications to existing systems and develops new or alternative systems to improve performance.

9th Grade – Newspaper/Radio/Television Station Field Trip

The end goal with a field trip to a newspaper or a radio station or a television station is to figure out how to operate a bonafide Newspaper, Radio Station, or Television Station for the school, e.g. "Bulldogs' Bites Banner" newspaper. Children need to be made aware of this goal because it changes how they see the field site. They need to research the Newspaper, Radio Station, or Television Station business, and particularly the Newspaper, Radio Station, or Television Station they will be visiting, before they go. This study will help them plan for interviews with specific questions designed to give them information so that they can set up and run a school Newspaper, Radio Station, or Television Station. Ideally, they would move to running a Newspaper, Radio Station, or Television Sation that the entire school could access.

I chose the Newspaper, Radio Station, or Television Station field trip for this level since children of this age are into communicating with each other and are heavily influenced by media. This venue provides them with an authentic audience during

schooling and it is within the context of the curriculum. Adolescents are ready to consider how to effectively communicate with each other about issues and ideas that are important to them. They can study these three modes of communication before they go on a field trip so that they can determine which of these is best for them to consider. Part of their decision will relate to what is available, which is a valuable lesson itself. Pre-visit study also helps them plan for what to look at, and for how to interview and what questions to ask during interviews. At this age they can help each other refine how to ask their questions and of whom to ask those questions. Asking questions of the owner would be different than asking questions of an employee or of a client. The whole idea of different audiences and different roles is almost obvious to children of this age.

Children need to be prepared to take notes as they tour the facility. Pairs of children can act as learning partners take responsibility for interviewing an employee after a tour of the facility. Questions that might arise: What kinds of jobs are there here? Why do we need type of business? From where do you get your new? What does an employee need to know in order to do their job? Possible answers could be: knowing how to get news, writing and reading news articles, feature stories and editorials, interpersonal skills, following directions, basic math to calculate a profit, problem solving how to make the production considering the resources available, etc.

Once the children return from the field trip, they need to debrief. They need to share what they have learned. At this level the children need to debrief in small groups before they debrief in the whole class. Actually, children of this age need to be in small groups for almost all projects and explorations. They need to communicate about what they think they are learning and experiencing. This helps them with their cognitive

processing. Members in the group can change depending on the activity. At this age children feel more comfortable putting forth perceptions and interpretations in small groups. The small group debriefing should be: questions answered, questions not answered, further questions, follow up questions, personal perceptions, personal and group interpretations, etc. The teacher's role is one of small group facilitator and resource person. In addition, the teacher's role during whole class debriefing is one of note keeping - on the board, an overhead, or poster paper. After sharing what they learned, the children need to consider what research they still need to do, how to follow up on interviews, how to begin to set up their Newspaper, Radio Station, or Television Station; how to define their clientele so they can plan their components; etc. This is where the children adapt some of the information that they learned on their field trip to meet their own situation. Again the teacher facilitates the discussion, making sure that everyone is heard, that everyone has a role to play in creating a school Newspaper, Radio Station, or Television Station, that curriculum goals are addressed, and that the children periodically revisit their system to make improvements and/or expand.

10th Grade –Sports Field Trip

I chose the general category of Sports as a field trip because Sports plays a major role in after work lives and in many children's after school lives. It is through exercising some kind of Sport that we keep our bodies fit and fit bodies contribute to positive self-concept of children of this age. Since self-concept is an important part of self-esteem at this age, this is a topic worth exploring. The topic is broad enough to allow for teams of children to go on various field trips. The children will probably create various productions of the information obtained. In addition, children of this age are quite

capable of deciding that some issues in Sports are worth creating a cause to advocate. For example, they could decide that they want to start a girls' football team. If such an outcome occurs, it would be advantageous for the children to encourage their effort. Children of this age need to see themselves as having an impact, not as being powerless. There are appropriate ways to pursue ideas, and teachers can guide children to use the appropriate ways.

11th Grade –Symphony/Museum Field Trip

We all live with music. Children of this age are making music choices that are often unwise and uneducated. This is a way to educate and create authentic reasons to explore "good taste". When considering a field trip to a symphony, it is the performers, the promoters, and the conductor, etc. that should be accessed. The focus here is in children learning how music is business as well as considering "good music".

The same applies to a museum field trip. All around our children is a visual world that speaks to them. Children of this age are interested in how the society perceives this visual world and what the society values of that visual world. They are interested in expressing themselves in a beautiful manner and are interested in others' expressions. The more moves away from art that is photographic and into representational art, the more children can gain from experiences in how and why to perceive art.

This is an area that is not traditionally covered with quality. The best most children get is attendance at concerts, usually with and by their own peers. Children of this age rarely even get to see the art that their peers are producing in art class. They do not usually get an opportunity to speak to people who make their living or spend their after-work hours in the world of art.

It should not be expected that children will set up a fine and performing arts curriculum, although they may as a result of these field trips, but it is reasonable to expect them to decide how to share the information and the experiences that they have had with their peers.

12th Grade –Research Local Area for an Appropriate Field Trip

At this point the children are almost ready to head out into the "real word" of work, or choose to extend their education. They have the background knowledge to decide on an area of learning. They need to exercise their thinking skills and research skills to a specific goal that will benefit them. Thus, at this grade level every course can consider the field trip method. The children in each course could be thinking about their future as it relates to said course. This is a way to make each course relevant to the learner, particularly after they are certain of the path that they have chosen and tend to dismiss information about all other paths. Also, it is hoped that teachers from all of the previous grade levels have employed the children in quality field experiences and extensions of those field experiences. Therefore, teachers can concentrate on meeting content and career goals of the students.

A reminder - It is always necessary to consider the developmental stage of the children when considering a field trip. Too often teachers only consider the content under study. Children are much more than content sponges. Educators have a responsibility to educate the whole child not just the cognitive part of the child. Both content and developmental focuses can be considered when constructing a field trip.

Contextual Learning
for School-Aged Children

The following two examples address contextual learning for math and science in school aged children. The first unit addresses math concepts and problem solving. It asks children to set up rational equations to help them solve real world problems dealing with wild life management. The philosophy is that "keeping the mathematical problems closely connected to those found in local businesses helps to create the contexts that can nurture the growth of mathematical thinking. Working together with business and community partners, teachers can create an effective setting that helps students experience authentic problem solving which can serve as a basis for learning important mathematics outlined in the N.C.T.M. standards" (p. 3 of this unit). In this unit relevancy is enhanced by a field trip to Ohio Division of Wild Life District three on Portage Lakes Drive in Akron.

The second unit addresses science thinking and concepts. It asks children to conduct an experiment to explore the concept of calorie. The children communicate with businesses and professionals as they explore the application of the calorie concept in the work place. "To ensure that connections are made beyond the instructional context, students will explore the application of calories in a variety of settings, such as heating and air conditioning, dietary nutrition, the medical field, sports physiology, and food production. The children also work with a local food production company.

These units focus on the connection between the concepts being taught and the real world application of those concepts. Although the audience for these units is middle and high school children, the teachers of these children have difficulty planning and implementing such lessons without these kinds of experiences themselves. An ideal place for these experiences is throughout schooling.

Integrating School-To-Work Principles in Teacher Education Programs at Kent State University

Curriculum Resources in Math and Science Education

By the project work team:

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With funding from the Ohio School-to-Work Office, the State University Education Deans have established a System Integration Coalition to undertake this work, along with three other related interuniversity projects. The Ohio State University college of Education has provided project management for the Coalition.

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A UNIT ON RATIONAL EQUATIONS AND THEIR APPLICATIONS

By Jamie Loudin, Akron Hoban High and Dr. Michael Mikusa, Kent State University

There is an interesting phenomenon in mathematics education that exists which is very puzzling to me. There is a widely accepted notion that mathematics is important and useful for everyone to know, and at the same time people are quite willing to share and even boast of their lack of knowledge or ability to do mathematics. I am finding that these people have a firm belief that mathematics is all about remembering facts, formulas, and rules. And furthermore, that the faster a person can compute or remember these facts and rules, the greater mathematics ability he/she has.

This could not be further from the truth! Our society and economy is not dominated by industry, as it was 20 to 30 years ago. The mathematical skills necessary for students to be successful in the workplace today are quite different from the "shopkeeper" mathematics required in the pre-computer era. The availability of computers and calculators has helped to redefine what mathematics is important and necessary to know.

The NCTM (National council of teachers of mathematics recognized that the mathematics necessary for all people who will be living and working in the 21st century was changing. Henry Pollak, an industrial mathematician, summarized the mathematical expectations of new employees in industry as:

The ability to set up problems with the appropriate operations;

Knowledge of a variety of techniques to approach and work on problems;

Understanding of the underlying mathematical features of a problem;

The ability to work with others on problems;

The ability to see the applicability of mathematical ideas to common and complex problems;

Belief in the utility and value of mathematics;

Preparation for open problem situations, since most real problems are not well formed.

In 1989, the N.C.T.M. published a new set of curriculum standards for school mathematics with these new goals as a guide. The vision of mathematics described in this document is also based on the assumption that knowing mathematics is doing mathematics and that all students create their own understanding of mathematics by making personal sense of mathematical ideas. Students should therefore be involved in solving problems that come out of meaningful (to them) contexts.

Another reform effort aimed at helping students learn the importance of becoming problem solvers is School to Work. Keeping the mathematical problems closely connected to those found in local businesses helps to create the contexts that can nurture the growth of mathematical thinking. Working together with business and community partners, teachers can create an effective setting that helps students experience authentic problem solving which can serve as the basis for learning important mathematics outlined in the N.C.T.M. standards. What follows is our attempt at integrating the goals of both of these reforms in a unit in a high school mathematics class.

OBJECTIVES

*Students will set up rational equations to help them solve real world problems (School Based)

*Students will interact with (ask questions, respond to questions and listen) a wild life management specialist (Work site Based)

*Students will successfully conduct their own capture/recapture experiment successfully (School Based)

*Students will use the Internet to find evidence of other population experiments. (School/Home Based)

LEARNING ACTIVITIES

[Initial activity is School Based]

1. Define the Problem to your students. Generate a discussion about the various perspectives of the park ranger, the animal rights activists, and even the deer. The Rangers at a state park noticed that there might be too large a deer population, they decide that they will sell a few hunting licenses to deer hunters to thin the population. Soon after they announce their plan, they receive calls from animal rights groups asking for proof about the large number of deer. The manager from the park tells them that a capture/recapture has been conducted and that 35 deer were captured, tagged, and released. A few weeks later 25 deer were "recaptured" and of those deer 7 had tags.

After the introduction of the problem above and some initial reasons for each group's perspective have been shared, the following questions will be posed to the students.

1. How many deer are estimated to be in the park?
2. Do you think capture/recapture is a valid method of population estimation?
3. Do you think there is any other way to take care of the population problem besides hunting the deer?

Students should form groups to discuss and formulate answers to the above questions.

[Lesson #2 School Based]

2. After some initial discussion among groups regarding the first day's questions about the problem, students will be encouraged to use their knowledge of rational equations to answer the questions they have been discussing in small groups. Frequently students will suggest to do a simulation of the capture-recapture. If students do not suggest after working in groups on this problem, you should suggest they do the following experiment.

The Experiment: The teacher should set-up a large bag of Styrofoam peanuts (or any cheap thing you can get a lot of) for each small group of students. The Styrofoam peanuts in each bag represent the number of dear in the population. Note that you should use large numbers of Styrofoam peanuts for each bag so that students aren't tempted to count the total number. Each bag should contain a different amount of peanuts and this number should be recorded for later use. Ask the students to capture-tag-recapture, as many times as they like, being sure to shake up the bag each time and keep a record of everything they discover. After they have repeated this procedure enough times and they feel they can predict what will happen, ask them to estimate the number of "deer" in their bags. Students will be amazed at how close they come to the correct number!

During this experiment encourage the students to ask questions that prepare them for the field trip. For example:

How do they catch the deer?

How much does it cost to catch the deer and tag them?

Is it reasonable and affordable to do the capture and recapture several times?

In a Real Life situation how do they mix up the population?

Writing these down is a good idea and sharing them with the park manager may make the field trip more interesting.

[Work site based]

3. The Field Trip: Ohio Division of Wild Life District Three is located at 912 Portage Lakes Drive in Akron, the number is (330) 644-2293. Park managers will agree to meet at a range of parks in the area to talk about wildlife population whether it is deer or fish. An hour long trip will be sufficient to allow the students to see the work place and "tools of the trade" as well as to ask questions of the wildlife management expert. Be sure that the questions that came up in class are covered, and encourage each student to ask or answer a question related to the problem introduced earlier in class.

4. Alternatives to onsite visit Virtual Visit: spend real time with an on-line wildlife professional in your school. You can visit Yellowstone National Park this way! Guest Speaker: The Ohio Environmental Protection Agency has agents who could come to your classroom to explain how they determine how many and what type of fish live in the lakes, rivers, and streams around the state. You could invite one into your classroom and have them bring and demonstrate the "tools of the trade" with your class.

Individual projects: Have students visit various occupations that do sampling. Many manufacturing companies use a form of sampling to determine the quality of the products they are making. Have students create a common set of questions to take on their visit. Each should prepare a 5 – 10 minute presentation to describe the nature of the work-site they visited and the answers to the common set of questions they received.

5. Follow up and Assessment:

Students will set up their own population problem to be shared with another group, and in turn will receive a problem from a group to solve. Watch for group interaction and listen to questions and the vocabulary that is being used. Students will be asked to use the Internet to find a sight that deals with these problems in some way and to write a summary of the sight. I had luck searching using "animal rights" and "population density".

A UNIT ON CALORIES

Prepared by Kim Costarella, Tallmadge Middle School and Dr. David Keller, Kent State University

Many institutions and organizations have examined the nature of science education in American schools during the past few years. Three commonalties are found in all these studies. First, United States students study more topics in science than their international counterparts. This has resulted in a curriculum "a mile wide and an inch deep." The second commonality is that science education needs to move from a "content based, to a process based, curriculum. Third, science education needs to become much more integrated, both from the aspect of integrating the life, earth, and physical sciences, and from the aspect of integrating the processes of science with other fields such as mathematics, social studies and language arts.

These three concerns for change parallel the philosophy of School to Work. With the availability of technology, science classrooms can be much more centered on authentic experiences and the immediate world of our students. An understanding of science and the processes of science are of increasing importance in the workplace. The integration of the philosophy of School to Work into science education will be a key to reaching the goals of the National Science Education Standards as defined by the National Research Council and supported by the National Science Teachers Association.

UNIT OVERVIEW

The following sample instructional unit is designed to expose middle level learners to the concept of a calorie as a measure of heat. By developing a thorough understanding of the calorie, students can apply the concept to solve problems, make relationships, and establish clear distinctions. To ensure that connections are made beyond the instructional context, students will explore the application of calories in a variety of settings, such as heating and air conditioning, dietary nutrition, the medical field, sports physiology, and food production.

The unit is composed of suggested learning activities. Teachers and students may choose to explore several activities in the classroom and use the remaining activities as extended searches. Each activity integrates school-based learning, work-based learning, and connecting activities. A sample lesson plan is included for the culminating activity. The culminating event requires students to work cooperatively with a business to design and operate a school-based enterprise.

OBJECTIVES

*Students will conduct an experiment to explore the concept of a calorie and develop an in-depth understanding of the term

*Students will apply the concept of a calorie when problem-solving

*Students will relate increase/decrease in body temperature to caloric production and action

*Students will communicate with several businesses and professionals in the community to inquire about the application of calories in the work place

*Students will work cooperatively with a local food production company to create a School-Based food enterprise

LEARNING ACTIVITIES

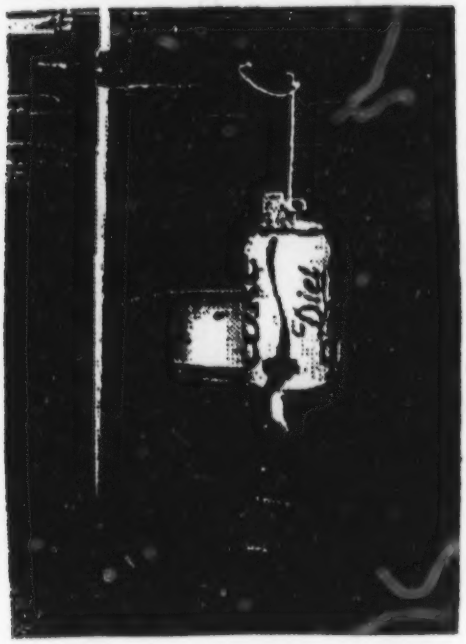
1. Measuring calories

A calorie is the amount of heat needed to raise one ml of water one degree Celsius. Calories used for nutritional measurements are 1000 calories and are denoted by using a capitol C (Calorie)

[School-Based]

Using an aluminum can calorimeter, students will measure the amount of calories that are burned from one peanut.

1. 100 ml of water is placed in an aluminum beverage can.
2. The temperature of the water is noted.
3. A peanut is burned below the calorimeter so that the heat from the burning peanut is absorbed into the calorimeter.
4. The temperature of the water is noted and the number of degrees that the water was heated is calculated. [Tf - Ti = T]
5. By multiplying the change in temperature times the number of ml of water in the calorimeter, the number of calories is determined. [ml of H_2O x T = ____calories]



1. Measuring Calories (Cont.)

[Work-Based]

Students will contact Meal on Wheels or other service agency to inquire about how meals are designed based on the number of calories and the percentage of fats, proteins, and carbohydrates.

[Connecting Activities]

- Students will research their daily calorie requirements by measuring their body fat percentages and calculating their lean body mass
- Students will keep a daily personal food journal and analyze their caloric consumption
- Students will design a personal nutritional program based on their caloric requirements
- Students will analyze the nutritional content of the meals offered by their school cafeteria and design a "Healthy Lunch Selection Menu".

2. Calculating mean body temperature

Recent research conducted by the Journal of American Medical Association suggest that the mean body temperature is approximately 98.2 F. Students will calculate the mean normal body temperature of the class and compare the results.

[School-Based]

Students will create a data set of the group's temperature and investigate the following:

1. The mean temperature of the class
2. The range of normal temperatures
3. Are there significant differences between male and female temperatures?
4. When should body temperature be considered abnormal?

[Work-Based]

Students will visit a medical facility to learn:

•The correct procedure for measuring body temperature

•Why body temperature is measured

•What is considered an abnormal body temperature

•What abnormal temperatures might indicate

•What treatments are available to reduce body temperature

•Other questions/concerns the students develop

[Connecting Activities]

•Students will investigate why humans shiver or sweat and design an experiment to research the effect of these processes on body temperature.

•Students will design and conduct an experiment to investigate the effect of food consumption on body temperature

3. **Calculating Basal Metabolic Rate**

The amount of energy required by the body in a sedentary state is defined at basal metabolic rate (BMR).

[School-Based]

Students will calculate their BMR and investigate the effect muscular activity has on energy requirements.

BMR is = 1C./kg/hr for males

BMR is = 0.91C./kg/hr for females

•Students will measure their sedentary body temperature before a defined exercise period such as running around the school track for 15 minutes.

•Students will, after the exercise, find the change in their body temperature. For better results students need to be well insulated during the exercise. Students could design their own insulated clothing

•Students will make a calculation f the number of calories burned by their body by measuring their body mass in grams (Kg times 1000)

•Students will relate the effect muscular activity has on body temperature to changes in metabolic rate

[Work-Based]

Students will interview sports physiologists or other fitness experts to inquire more about the processes of BMR and burning energy in the body.

[Connecting Activities]

Students will create a detailed personal exercise program designed to increase metabolic rate.

4. **Accounting for dissipation of body heat in climate control**

The human body constantly exchanges heat with the environment through convection. Students will relate the dissipation of body heat to fluctuations in room temperature.

[School-Based]

Students will research the amount of heat produced by their bodies during a sedentary period and estimate the amount of heat dissipated into the classroom. Students will then calculate the amount of air conditioning required to maintain the room temperature based on a given variable (number of people., room size).

[Work-Based]

- Students will consult with heating and air conditioning contractors to examine the variables, such as how many people will occupy the facility, in designing a heating and air conditioning system.
- Students will make comparisons of the quality and amount of insulation used in different structures.
- Students will visit the county coroner to investigate how the estimated time of death is determined using body and room temperature.

[Connecting Activities]

Students will work collaboratively with heating and air conditioning contractors to design a climate control system for the school building. Students will generate the design plans and cost of installing a system. If

the school building already contains an air conditioning system, the new plans will be compared with the existing system.

The following is sample lesson plan that incorporates school-based, work-based, and connecting activities.

EDIBLE ENDEVOURS

Overview:

Students will work cooperatively with a local food production company to design and operate a school-based enterprise.

Objectives:

***Students will perform general elements of food service production and management**

***Students will define personnel management in relation to the operation**

***Students will explain the functions and nutritional value of three food products produced**

***Students will demonstrate a working knowledge of proper food preparation techniques**

***Students will organize resources for the management and supervision of quality and quantity of food production**

Procedure:

1. Students will tour a local food production company to inquire about how the facility is structured
2. Students will organize themselves into departments (i.e. management, marketing, accounting, distribution, research and development, manufacturing) and elect division leaders.
3. Each department will work with the company to:

   *Participate in a company training program

   *Work with a mentor from the company to explore the job skills required to complete various tasks

   *Job shadow
4. Students will work collaboratively with company to design and operate a food-based company. Each department will be responsible for the development and operation of their division. The following is a list of suggested activities:

- Conduct research to decide what food to produce (i.e. cookies, candy, peanut butter and jelly sandwiches)

- Perform price/taste comparisons on ingredients
- Run a cost analysis including raw materials and labor
- Develop food preparation/packaging procedures in accordance to federal guidelines
- Analyze nutritional content and create food labels
- Create/Implement a marketing campaign
- Establish start-up cost
- Operate the business

5. The profits generated form the business endeavor will be donated to a local food bank

Assessment Suggestions:

The success of the business will be evaluated by the students, teacher, and business mentors.

- Develop a rubric with input from students, teachers, and mentors to assess: individual success, group success, and cooperative skills.
- Analysis of net profits by developing charts and graphs
- Customer surveys
- The following questions will be used by the students to evaluate the success of the business. The responses will be used to examine student learning:
    1. How would you restructure the company to cut production costs and eliminate waste?
    2. How could technology be used to lower production cost?
    3. How would you expand the business? Would you add a work shift?
    4. What other products should our company produce?
- Culminating Presentation
    1. Outline the planning/development/implementation of the operation
    2. Research findings
    3. Overall evaluation of the success of the business

IV. ADDITIONAL RESOURCES

A. Professional and Resource Associations

The following professional associations can be consulted for further information on school-to-work, contextual and authentic learning:

Association for Supervision & Curriculum Development (ASCD) is an international community of educators dedicated to the improvement of instructional supervision, instruction, and curriculum design. ASCD disseminate information on education research and classroom practices and forges links among educators through publications and training programs, seminars and conferences. ASCD is particularly interested in the general topic of curriculum integration and has sponsored both publications and conferences on this subject. 1250 North Pitt Street, Alexandria, VA 22314-1453. (703) 549-9110.

Center for Law and Education's VOCED Project works with schools and communities to develop school-to-work systems and improve occupational education programs. The VOCED Project publishes policy papers as well as practical guidelines and conducts workshops and conferences on how to improve programs. 1875 Connecticut Avenue, NW, Suite 510, Washington, DC 20009. (202) 986-3000.

Center of Occupational Research and Development (CORD) is a service organization that helps educators in schools and industry address the technical education, training, and retraining needs of workers. A primary organizational focus is the development of applied academic curricula. Among the curricula available from CORD are *Applied Mathematics, Applications in Biology/Chemistry, Principles of Technology, and Tech Prep Resources.* 601 Lake Air Drive, P.O. Box 21689, Waco, TX 76702-1689. (817) 772-8756.

National Consortium for Product Quality (NCPQ) is a project funded by the National Center for Research in Vocational Education and directed by the Center on Education and Work, University of Wisconsin-Madison. The NCPQ was established to accomplish a two-fold mission: (1) to develop, research, and implement school-to-work product standards; and (2) to develop a national review process by which school-to-work material can be collected, evaluated, and disseminated. Center on Education and Work, 964 Education Sciences Building, 1025 West Johnson Street, Madison, WI 53706. (608) 263-3152. Internet: bdougherty%cew@soemadison.wisc.edu.

The National Network for Curriculum Coordination In Vocational and Technical Education (NCCVTE) is a nationwide network of six curriculum coordination centers sponsored by the U.S. Department of Education, Office of Vocational and Adult Education. The network promotes sharing of curricula, professional development of state and local educators, research in curriculum design methodology, and coordination of development among states. The six centers are at the following locations:

*East Central Curriculum Coordination Center, Sangamon State University, F-2, Springfield, IL 62794-9243. (217) 786-6173/

*Midwest Curriculum Coordination Center, Oklahoma Department of Vocational and Technical Education, 1500 W. 7th Avenue, Stillwate, OK 74074-4364. (405) 743-5192.

*Northeast Curriculum Coordination Center, New Jersey State Department of Education, Division of Vocational Education, Crest Way, Aberdeen, NJ 07747. (908) 290-1900/

*Northwest Curriculum coordination Center, Saint Martin's College, Old main, Room 478, Lacey, WA 98503. (206) 438-4456.

*Southeast Curriculum Coordination Center, Mississippi State University, Research and Curriculum Unity, P.O. Drawer DX, Mississippi State, MS 39762. (601) 325-2510.

*Western Curriculum Coordination Center, University of Hawaii at Manoa, Colege of Education, 1776 University Avenue, Wist 216, Honolulu, HI 96844-0001. (808) 956-7834.

The **Academy for Educational Development's National Institute for Work and Learning** seeks to bring the work, education, government, and community sectors together around the shared goal of working collaboratively to improve education-work relationships in the interests of individuals and society. It accomplishes this mission through research, program documentation and evaluation, policy analysis, technical assistance and training, and information networking. 1875 Connecticut Avenue, NW, Washington, DC 20009. (202) 884-8186.

The Institute on Education and the Economy (IEE) at Columbia University is a multi-disciplinary research and technical assistance center. IEE Conducts research on the implications of changes in the economy and labor markets for all levels of education and training systems in the United States. The Institute also provides technical assistance and evaluation services to schools, school districts, and states

involved in work-related education reform. Teachers College, Box 174, 525 West 120th Street, New York, NY 10027. (212) 678-3091. lrr@columbia.edu.

Jobs for the Future (JFF) is a national, nonprofit organization that conducts research, provides technical assistance, and proposes policy innovation on the interrelated issues of work and learning. JFF's goal is to encourage policies and practices that prepare all citizens for successful transitions between learning and work. One Bowdoin Square, Boston, MA 02114. (617) 742-5995. Jff@jff.org.

The National School-to-Work Learning & Information Center, 400 Virginia Avenue, Room 150 Washington, DC 20024, Phone: 1-800-251-7236, Fax: 202-401-6211, E-mail: stw-lc@ed.gov

Ohio School-to-Work, 131 N. High St., Suite 500 Columbus, OH 43215, Phone: (614) 728-4630, Fax: (614) 728-6188, Internet: www.ohio-stw.com

B. Additional Reading

The following readings can be consulted to learn more about school-to-work as a framework for planning and delivering instruction.

Braunger, Jane and Sylvia Hart-Landsberg. *Crossing Boundaries: Explorations in Integrative Curriculum.* Portland, Oregon: Northwest Regional Education Laboratory, 1994.

Goldberger, S., R. Kazis, and M.K. O'Flanagan. Learning Through Work: Designing and Implementing Quality Worksite Leaning for High School Students. New York: manpower Demonstration Research Corporation, 1994.

Grubb, W.N., G. Davis, J. Lum, J. Plihal, and C. Morgaine. The Cunning Hand, The Cultured Mind: Models for Integrating Vocational and Academic Education. Berkeley, CA: University of California at Berkeley, national Center for Research in Vocational Education, 1991.

Grubb, W. Norton, ed. *Education Through Occupations in American High Schools.* Volumes I & II. Williston, VT: Teachers College Press, 1995.

Roegge, Chris A., James R. Galloway, and Julie A. Welge. *Setting The Stage: A Practitioner's Guide to Integrating Vocational and Academic Education.* Springfield, IL: Illinois State Board of Education, 1991.

Southern Regional Education Board. *Integrated Learning.* Atlanta, GA: Southern Regional Education Board, 1995.

Weinbaum, A., and A.M. Rogers. Contextual Learning: A Critical Aspect of School-to-Work Transition Programs. Washington, DC: Academy for Educational Development, 1995.

Bibliography

Finch, Curtis, Schmidt, June and Moore, Margaret Meeting Teachers' Professional Development Needs for School-to-Work Transition: Strategies for Success, National Center for Research in Vocational Education, Berkeley, CA, October, 1997.

Bailey, Thomas and Merritt, Donna "School-to-Work" for the College Bound Ed Week, October, 1997.

"What is School-to-Work?" School-to-Work Web Page, National School-to-Work Learning and Information Center, September, 1996.

Newmann, Fred and Wehlage, Gary "Five Standards of Authentic Instruction" Educational Leadership, April, 1993.

02Berns, Robert, Co etal A framework for Integrating School-to-Work into Preservice Teacher Education Programs State University Education Deans Bowling Green State University, Summer, 1997.

STW Resource Bulletin "Curriculum Integration in School-to-Work Systems" The National School-to-Work Learning and Information Center, April, 1996.

Youngstown State University

Department of Mathematics and Statistics

Course Syllabus for Mathematics 3767

Title: Integrated Algebra / Geometry / Calculus for Middle School Teachers I

Credit: 4 s.h.

Description: An integrated, conceptual, and function-centered approach to elementary and intermediate algebra for preservice middle childhood mathematics specialists. Emphasis on multiple approaches and representations, problem solving, and communication of mathematical reasoning. Includes inquiry based laboratory experiences. Not applicable to the mathematics major.

Prerequisites: Math 2665 (or Math 666 under the quarter system).

Text: *Concepts in Algebra, A Technological Approach*, Fey, Heid, Good, Sheets, Blume, and Zbiek, Everyday Learning.

Calculator: A graphing calculator is required. The TI-73 or TI-83 Plus is recommended.

Text coverage: All (Chapters 1-9).

Goals: In this sequence of courses (Math 3767 and 3768) future middle childhood mathematics specialists significantly extend their mathematics education beyond that traditionally required of K-8 generalists. In particular:

1. The conceptual and skill objectives for students in this sequence might be thought of as those which would well prepare you to teach Honors Algebra in the eighth grade. Implicit in this statement is the recognition that being well prepared to teach such a class implies a good understanding of mathematics related to, but well beyond, that which would typically be in it.

2. Students will extend the mathematical thinking objectives developed in the *Foundations of Middle School Mathematics* sequence in several ways. New tools of problem-solving, reasoning, representing information, and oral and written communication will be developed that are appropriate for the more sophisticated mathematical content of this course. Inductive thinking as used in the Math 1564/2665 sequence will continue to be developed, but a new level of mathematical thinking will receive increased emphasis, namely your ability to confidently know whether or not a mathematical argument that you present is complete.

3. Students will extend their understanding of technology to that appropriate for the more sophisticated mathematical concepts of this sequence. You will become proficient users of graphing calculators and spreadsheets. New technology appropriate for the integration of mathematics and science, such as calculator-based

laboratories for gathering and analyzing data, will be introduced, as will Computer Algebra Systems. Understanding the connections among the many approaches to understanding functions and technological tools will be of utmost importance.

Topics: The specific mathematics topics covered in this course, from the points of view described above, include:

1. Multiple representations of functions, including:

   a) verbal descriptions from the context of applications,
   b) diagrams,
   c) tables,
   d) graphs, and
   e) many equivalent symbolic forms.

   Students will be expected to translate information from any of these forms to the others and to be able to use any of the non-verbal representations to solve application problems.

2. A conceptual understanding of, and fluency in calculation with, various types of functions and relations such as:

   f) linear,
   g) quadratic, square root, and absolute value,
   h) exponential and logarithmic, and
   i) rational.

   With all of these types of functions, students will explore properties such as domain and range, composition of functions and the existence of inverses and partial inverses, and implicitly and recursively defined functions.

Assessment: Students will be assessed through a variety of means including tests, quizzes, homework, oral presentations and demonstrations, and written projects. The specific mix of assessment tools will be left to the instructor. Students will be expected to:

1. Demonstrate their ability to solve standard and inverse problems related to the mathematics covered in the course.
2. Demonstrate their ability to represent fundamental mathematical concepts and ideas in a variety of ways using symbols, diagrams, pictures, charts, etc.
3. Demonstrate their ability to connect the mathematics covered in the course to applications of mathematics and to related topics within mathematics.
4. Demonstrate their ability to make effective use of mathematical technology to demonstrate results, solve problems, and explore problem situations.
5. Demonstrate their ability to reason with the mathematical ideas of the course by finding patterns, making explanations and writing short proofs.

Grading: Attendance and participation will be graded on a weekly quiz or homework assignment. Every unexcused absence will result in some points deducted from the quiz or homework assignment.

1. There will be between 50 and 100 points for homework and quizzes.
2. The shed project and interview will be worth 75 points.*
3. There will be three 50 point exams.
4. The final exam will be worth 100 points.

90% of the total points possible will guarantee you an A,
80% of the total points possible will guarantee you at least B,
70% of the total points possible will guarantee you at least C,
60% of the total points possible will guarantee you at least D.

*The inclusion of this problem represents an adaptation of the departmental syllabus. In completing this project – A Simulated Real World Mathematical Problem: "The Shed" – students must apply all of the concepts listed under topic 1 above as well as many of the concepts listed under topic 2. This project also integrates all 5 of the expectations included in the assessment statement.

A Simulated Real World Mathematical Problem
"The Shed"

Notes to the Instructor

The organization of the Shed Problem into separate activities allows the instructor to assign this problem as a project completed entirely out of class or completed partially in class. Although it is not absolutely necessary, it is suggested that Activity Sheet 6 be completed as an out-of-class assignment. Only Activity Sheet 7, the interview, must be completed outside of class. Activity Sheets 8 and 9 extend the ideas in the preceding activities. If the project is to be completed partially in class, one class period of approximately 50 minutes should be allowed for each in-class activity. Students should work on the project in groups of two or three. The nine activity sheets provide directions and questions to be addressed in completion of the project; however, the space provided for answers may not be sufficient. The instructor should decide on the format of the completed project as well as the number of points allocated for each activity. Group presentations and/or displays of project results is a highly desirable option, especially for the results of Activity Sheets 6 and 7.

The following may serve as guidelines for discussion when activities are completed in class, may be used to give direction to students who have difficulty making progress on the assignment, or may direct a summarizing class after all students have handed in the assignment.

Define functions:

$Y_1 = 150/(.5X^2)$ Volume is divided by the area of the base to get the height.

$Y_2 = 2(2*.5**X^2)+1*X*(300/X^2)+8*X*(300/X^2)+4*(\sqrt{2}*X)*(300/X^2)$

Cost of the shed is \$2 times the area of the ends plus \$1 times the area of the back plus \$8 times the area of the floor plus \$4 times the area of the roof.

$Y_3 = Y_2 - 600$ A function defined for ease of viewing height of the shed and total cost.

Some things to do with Y_1 and Y_2. Have students:

Write the functions in words.

Look at each of the TABLEs and see what happens to the variables Y_1 and Y_2.

Using the TABLEs, describe in words what happens to Y_1 and Y_2 as X varies from 0 to 20, e.g. when X gets larger, the height gets smaller so that the shed will hold 150 cubic meters, and the cost of this shed ....

Think about why these patterns make sense, i.e. as the leg gets larger, the slant gets larger; as the leg gets larger, the height gets smaller (keeping 150 cubic meters as the volume).

TRACE the functions to see what happens to height and cost as X varies from 0 to 25.

Using TRACE, describe in words what happens to Y_1 and Y_2 as X varies from 0 to 20.

Sketch the Y_1 and Y_2 on graph paper and label everything carefully.

Find the cheapest shed using TABLE and integer values for X.

Find the cheapest shed using TABLE and smaller increments for X. Find the cheapest shed to the nearest penny. What leg gives this?

Use TRACE to find the cheapest shed; depending on the WINDOW, students may get different values. What leg gives this?

Use MIN from the CALCULATE menu to find the cheapest shed. What leg gives this?

Concepts applied in the Shed Problem:

The Shed Problem integrates and applies many of the topics treated in Mathematics 3767; among others, the following concepts are addressed in the problem:

1. Multiple representations of functions, including:

    a) verbal descriptions from the context of applications,
    b) diagrams,
    c) tables,
    d) graphs, and
    e) many equivalent symbolic forms.

    Students will be expected to translate information from any of these forms to the others and to be able to use any of the non-verbal representations to solve application problems.

2. A conceptual understanding of, and fluency in calculation with, various types of functions and relations such as:

    f) linear,
    g) quadratic, square root, and,
    h) rational.

    With these types of functions, students will explore properties such as domain and range.

The Shed Problem - Activity Sheet 1

ABC Company wants to build a storage shed that will be attached to the side of an existing building. The shed will have isosceles right triangular ends and a rectangular roof that will slant from the existing building all the way to the ground. The floor of the shed must be made of moisture resistant material that costs $8/square meter; the roof of the shed will be made of somewhat less durable material costing $4/square meter; the triangular ends of the shed will be made of material costing $2/square meter; the back of the shed, that is against the building, can be made of inexpensive material that costs $1/square meter. The shed needs to hold 150 cubic meters of biodegradable packing material. How should ABC Company construct the shed so that it spends as little as possible?

Discuss the problem in your group:

What is confusing?

What things do you need to know in order to begin solving the problem?

If you don't remember something you need, how do you find out? For example, how do you find out what an isosceles right triangle is?

Sometimes building an actual model can help you to solve problems. How could building a model help you to understand and solve the problem of building the least expensive shed?

If you don't know the dimensions for the "real" shed, how would you know how large to make the model?

What things about a model and the "real" shed will be the same?

What things about a model and the "real" shed will be different?

The Shed Problem - Activity Sheet 2

Build a model of the shed from colored poster board, one color for each type of building material. Use yellow for the floor of the shed (material that costs $8/square meter), red for the roof of the shed (material costing $4/square meter), green for the triangular ends of the shed (material costing $2/square meter), and orange for the back of the shed (material that costs $1/square meter).

Now that you have a model for the shed, explain how to figure out how much the shed holds?

A picture may also help you to understand the problem of finding the shed that will cost the least. Make a sketch of the shed on the back of this paper. What difficulties do you have in making such a sketch?

What difficulties do you have in interpreting such a sketch?

What information is more easily conveyed by a physical model than by a sketch on paper?

What advantages does your picture have over your physical model of the shed?

Discuss general ideas you have about how to make a shed that costs as little as possible with the other members of your group. Summarize your discussion and any tentative conclusions you reached.

The Shed Problem - Activity Sheet 3

Suppose each of you were to build a shed but didn't worry about how much it holds. Use your model as an example: measure each length to the nearest centimeter and calculate the cost based on $8/square centimeter for the floor, $4/square centimeter for the roof, $2/square centimeter for the ends, and $1/square centimeter for the back.

Find the cost of the roof in your model.

Write an expression that will always give you the cost of any rectangular roof. Write the expression in words. Write the expression using symbols for words; be sure to define your symbols.

Write similar verbal, numerical, and symbolic expressions for the cost of each part of the shed.

How do you find the total cost of the shed?

Suppose you change the dimensions of your shed. How do you find the cost now?

The Shed Problem - Activity Sheet 4

How many **different** linear dimensions are there in your model of the shed? Why is this true?

Choose dimensions for some (at least two) "real" sheds, and find the cost of the sheds with these dimensions. Organize your data in a chart on graph paper so that you have recorded each of the appropriate linear dimensions, each of the appropriate areas, the cost of each of the appropriate areas, and the total cost of the shed.

How do you find out how much each of these sheds holds?

Do the sheds recorded in your chart hold the amount of packing material required by the company? If the model you constructed were a scale model for a real shed -- with 1 centimeter standing for 1 meter -- would that shed hold the correct amount of material?

If the sheds above do not hold the required amount of material, how do you find some dimensions that work?

If any of the sheds does hold the required amount of material, do you have the least expensive shed? If so, how do you know?

You might design inexpensive sheds and see which of them hold the amount of material required or you might design sheds that hold the amount of material required and see which of them is the least expensive. Which method do you think might be the most profitable? Why?

Can you use any of the expressions written earlier to make sure that a shed you design is the least expensive shed? Why or why not? Can you use any of the expressions written earlier to make sure that a shed you design holds the required amount of material? Why or why not? Write any appropriate expressions in words, numbers, and symbols.

The Shed Problem - Activity Sheet 5

After you have tried several dimensions for sheds that hold the required amount of material, how could you arrange those dimensions so that your search for the least expensive shed might be easier?

How would you then go about finding the least expensive shed that holds the required amount of material? Can you find a way of getting a reasonably good answer to the problem?

Once you have a method for finding a good answer to this problem, you might do one or more of the following to help you understand the problem further:

a. Graph the dimensions of some sheds, e.g. the height of the back wall on the x-axis and the length of the back wall on the y-axis. What does the graph show?

b. Graph one dimension of the shed on the x-axis and the cost of the shed on the y-axis. What dimension should you use? What does the graph show?

c. Program the calculator to take a value for the height of the back wall and give the length of the back wall and the total cost of the shed.

d. Use a spreadsheet to model the problem. This spreadsheet model could appear very much like a chart that you might use to arrange data in previous calculations or it might be a what-if analysis that more closely resembles a calculator program.

What happens if you remove the condition that the triangular ends are isosceles?

The Shed Problem Applied - Activity Sheet 6

Create an application patterned after the Shed Problem that is appropriate for the level of student you are preparing to teach. Your application should be turned in on a diskette in Word format so that copies can be made and distributed to your classmates. Include the following items in your application.

1. Identify the grade level of the students for whom the application is intended.

2. Specify the number of students in each group and the conditions under which the assignment will be completed.

3. Provide a verbal context or story that sets the stage for the problem. Make sure the verbal context provides sufficient information to solve the problem and clearly states the problem to be solved. It is not necessary that the statement of the problem be fully explicated before the students are asked to do something. For example, you could have the students build a model before you ask questions that lead to numerical or symbolic statements.

4. Give necessary directions for construction of a model of the problem.

5. Delineate questions that lead students to the solution of the problem. Make sure that some of the questions require diagrams, tables or graphs and that some require written explanations. If symbolic representations are appropriate at the grade level you choose, include questions requiring these as well.

6. Give instructions for a presentation of the group projects to the class.

The Shed Problem Interview - Activity Sheet 7

In an effort to help you understand how the mathematical concepts and technology used in this course are applied in various occupations, you are asked to interview someone who makes some use of these mathematical ideas and tools in performing his/her job. It is your responsibility to make sure that the person interviewed does routinely make some non-trivial use of mathematics.

After you have arranged for the interview, introduce yourself and explain that you are studying mathematics and are learning many concepts and making extensive use of technology. Indicate that your purpose for the interview is to find out how these concepts are used in his/her job and what he/she feels about the role of these concepts/technology in successfully performing his/her job. Be sure to ask the following questions, but feel free to follow up on interesting things the interviewee says or on other questions that come to mind. Note that some suggestions or reminders are included below in italics.

Take extensive notes during your interview. You may want to ask the interviewee for permission to record the interview. Finally, write a 2 to 3 page occupational profile of the person you interviewed. Base the profile both on the information obtained in the interview as well as your own interpretation of this information. Turn in your notes (or tape) and a typed copy of the profile.

1. What is your name?

2. What is your occupation? Please explain what you do.

3. Did you attend college to train for this occupation? If not, have you received other post-secondary training, including on-the-job training, to help you do your job? *If the interviewee does not do so, ask him/her to describe any post-secondary education or training.*

4. Has any of your training been of a mathematical nature? If so, please describe the training. *You may have to probe or give examples. You may also have to come back to this question after asking later questions.*

5. Do you use any of the following ideas, concepts, or tools in your job? If so, explain how you use them. *You may have to give examples or explanations. Take cues from the interviewee as to how much explanation in needed or appropriate.*

   Ways of representing mathematical/numerical ideas or relationships:
   - verbal descriptions diagrams or pictures
   - tables of values
   - graphs
   - symbolic expressions or equations

Types of functions or relationships:

- linear
- quadratic
- square root and absolute value
- exponential and logarithmic
- rational

Types of technology:

- calculators
- graphing utilities including calculators and/or computer programs
- spreadsheets

6. If I were to do your job, what do you suggest I understand of these concepts? Why?

7. How important is an understanding or use of the concepts you have told me about to your successfully performing you job?

8. Are there any other things you would like to tell me about the use of mathematical concepts and related technology in your job?

9. *Thank the interviewee for his/her time, and offer to give him/her a copy of your report when you have completed it.*

The Shed Problem Revisited - Activity Sheet 8

ABC Company's own storage shed was so popular that it opened a new division, Ready-Made Sheds, to mass produces storage sheds for sale to the public. Recall that these sheds are attached to the side of an existing building and have triangular ends and a rectangular roof. The purchase of raw materials in quantity has reduced the cost of making each shed. The floors of the sheds are made of moisture resistant material that costs $6.50/square meter; the roofs of the sheds are made of somewhat less durable material costing $3.25/square meter; the triangular ends of the sheds are made of material costing $1.95/square meter; the backs of the sheds (against the building) are made of material which costs $0.65/square meter. Each shed holds 150 cubic meters of biodegradable packing material; the mechanism by which this material gets into the shed is still a mystery. Naturally, Ready-Made Sheds wants to spend as little as possible to construct each shed. Oops! I almost forgot; we now need to add labor to the cost of each shed.

Ready-Made Sheds has decided to make two models of its product. The triangular ends of the first model, Lean-1, are still isosceles. Since it is difficult to find employees who understand the word isosceles, the cost of labor for each of these sheds is $475. Write a program that takes the length of the leg of the isosceles triangle as input and gives the other linear dimensions of the shed, as well as the cost of the shed, as output. Graph the cost function and find the dimensions and cost of the least expensive shed.

Cost function:

Cost of the least expensive shed:

Dimensions of the least expensive shed:

WOMEN IN LITERATURE

Dr. Sherry Lindon
Adapted by Dora L. Bailey

Youngstown State University
September 2000

ENGLISH 2617: WOMEN IN LITERATURE
Youngstown State University
Fall XXXX

Dr. Sherry Linkon
235 DeBartolo Hall
English Dept. 742-1951
American studies Dept. 742- 2977

Prerequisite: English 551/1551 or the equivalent

Course description and goals:
Women in Literature is a general education course (a humanities course under the old program and an artistic an literary expressions course under the new system) that also serves students I some degree programs and minors. His course focuses on two "enduring understandings":

- Telling stories, reading stories, and talking about stories can help people understand their experience and the world around them.
- Around the world and in different times, women share some similar issues, but different circumstances – of time, of social position, of situation – create different possibilities, so women respond differently to those shared issues.

By the end of the semester, you should be able to demonstrate your understanding of these ideas by doing three things:

- Explain how specific literary texts comment on women's experiences – the author's experience, the character' experiences, the experiences of women like the author and her characters, and your own experiences.
- Identify the issues faced by the author and /or female characters and explain why she/they responded in particular ways
- Compare the responses of authors and/or characters from texts that represent different circumstances, and explain how they are similar and why they are different

Tests:
Norton Anthology of Literature by Women, Sandra Gelbert, ed.

Assignments & Grading:
Over the course of the semester, you will complete 5 1-page papers (20% of grade), 1 positionality essay (10% of grade), 1 integrative project (15% of Grade), 1 interview (10% of grade), 1 woman's story (15% of grade), and a learning portfolio (other things besides the above for 30% of grade). You must complete all of these assignments in order to pass the course.

5 1-page papers: no more than 1 page each, typed, double-spaced, designed to help you develop your skills in analyzing literary texts; due every Friday from September 8 to October 6.

A positionality essay: 3-5 pages, in which you will compare your situation with Toni Morrison's and her character Sula's and consider how your positionality affects your response to the novel: due November 6.

An integrative project: 5-10 pages I which you will pull together material from at least 3 course texts, classroom discussions, and your own experience to demonstrate your understanding of the central ideas of the course. I will give you a set of options to choose from for this project, or you may – with my approval design your own. Due December 1.

An interview: *in an effort to better understand he issues behind women's lives, you are asked to interview a woman using the interview schedule handed out in class. You will write a 2 page profile of this person. Include in your portfolio.*

A woman's story: *Find a book that documents a woman's story. Note the manner in which this woman begins her story. Use concepts of story illustrated in your readings for this class. (It is not necessary to read the whole book before the course is over) The woman's story is to be presented in small group as well as added to your portfolio.*

**Option: You may interview a woman extensively. Tell her story. Telling her story can be written or audio taped.*

Note: You will not receive grades on these assignments, but I will comment on them extensively. You may rewrite any of the papers or project if you think you can do a better job. Your course grade will be based entirely on your learning portfolio, in which you will document and evaluate your own learning.

The learning portfolio: submitted once at midterm (October 20) and once at the end of the semester (December 11). The learning portfolio will help you become more aware of your own learning and help me see both your effort and what you have accomplished.

Your portfolio should include the following items:

1. An opening statement, in which you identify what you want from the course and take stock of what you already know about women and literature. Your statement should explain why you took the course, how it fits into your educational goals, why you're interested in reading women's literature, and/or what gender-related issues are important in your life. You should also explain what you already know about women and literature. You might want to write about your reading history or other worm's studies courses you've taken. And if you don't know much, it's ok to say so.

I'll collect these on September 6th and return them with some comments. Remember to save your opening statement to include in your midterm and final portfolios.

2. A "learning log" in which you record your learning activities and make very brief reflective comments. Learning activities include everything you do related to this course – coming to class, reading, talking with friends, working on papers or projects, preparing your portfolio, and anything else that helps you learn (including just sitting and thinking about things). Each log entry should state what you did and what you thought about it. Here are a couple of examples of appropriate log entries:

September 8: Spent 3 hours tonight reading the first few chapters of Sula. I'm very confused about what's happening – what's real and what's imaginary? – but I like the way Morrison uses language.

November 3: I was talking with my friend Rob today, and he says that men go through a lot of the same kinds of things as women. That made me think about how much difference there really is. Maybe we should have courses about men and women in literature, not just women in literature?

Your log should include a record of your attendance I class, but please don't just summarize what we did in class each day. Use the log to show me what you're doing outside of class and to comment on how classroom activities do or do not help you learn.

3. Copies of all of your papers and projects, including my written comments and any revisions you choose to do. If you revise a paper, you might want to add a short statement explaining what you did, though you don't have to.

4. 2 reflective statements, one completed at midterm and one at the end of the semester, addressing the following questions:

- ❖ What activities and experiences, in class or outside of class, have most enhanced your learning in this course?
- ❖ How has your understanding of the "enduring understandings" deepened? Cite specific evidence from your own work to show how your understanding has deepened.
- ❖ What grade would you assign yourself? I'll give you a grading rubric to help you with this.
- ❖ What changes in this course and/ or your own learning activities would help you learn better?

I will give you a tentative midterm grade, to give you a sense of how you're doing, but the only binding grade is the final one.

Grade:
100% - 90% = A; 89% - 80% = B; 79% - 70% = C; 69% - 60 = D; 59% - 50 = F

Course Schedule

Dates	Assignments	Themes
September 4	**Monday:** No Class, Labor Day	**Women &Writing**
September 6	**Wednesday:** Opening statements due; Read Woolf, excerpt from "A Room of One's Own" (1338-1344)	
September 8	**Friday:** Short paper due	
September 11,	**Monday:** Read Anne Bradstreet, "The Author to Her Book" (88) and Margaret Cavendish, "The Poetess's Hasty Resolution	
September 13	**Wednesday:** Fanny Fern, "Mrs. Adolphus Smith Sporting the 'Blue Stocking'" (438); Florence Nightingale, from *Cassandra*, "Women's Time" (837-841); and Emily Dickinson, 613 (874.	
September 15	**Friday:** Charlotte Perkins Gilman, "The Yellow Wallpaper" (1133-1144); Short paper due.	
September 18	**Monday:** Anna Wickham, "Dedication of the Cook" (1382); Carolyn Kizer, "From Pro Femina" (1894-1895); Adrienne Rich, I Am in Danger- Sir –" (1959-1960.	
September 20	**Wednesday:** Paule Marshall, "Poets in the Kitchen" and Alice Walker, "In Search of Our Mother's Gardens" (2315-2322	
September 22	**Friday:** Short paper due	
September 25	**Monday:** Lora Dee Cervantes, "Cannery Town in August" (2349); Linda Hogan, "The Hands" (2326); Jamaica Kincaid, "Girl" (2335-2336); Margaret Walker, "Whores" (1737); and Alice Dunbar-Nelson, "I Sit and Sew" (1308)	**Work**
September 27	**Wednesday:** Rebecca Harding Davis, "Life in the Iron-Mills" (919-944)	
September, 29	**Friday:** Mary Astell, "Ambition" (189); Ana Letitia Barbauld, "Washing-Day" (226-228); Short paper due	
October 2	**Monday:** Charlotte Bronte, *Jane Eyre* (472-676)	
October 4	**Wednesday:** More on *Jane Eyre*	
October 6	**Friday:** Short paper due	
October 9	**Monday:** *Jane Eyre* (676-784)	
October 11	**Wednesday:** Susan Glaspell, *Trifles* (1351-1360)	
October 13	**Friday:** TBA	
October 16	**Monday:** Frances Ellen Watkins Harper, "The Slave Mother" (845-846) and Louisa May Alcott, form *Little Women* (946-960)	**Relationships-motherhood**
October 18	**Wednesday:** Meridel Le Sueur, "Annunciation" (1587-1594) and Anais Nin, "Birth" (1624-1627)	
October 20	**Friday:** TBA	

October 23 October 25 October 27	**Monday:** Hisaye Yamamoto, "Seventeen Syllables" (1834-1843) and Edna O'Brien, "A Rose in the heart" (2101-2120) **Wednesday:** Audre Lorde, "Now That I Am Forever With Child" (2129-2130); Margaret Atwood, "Spelling" (2216-2217); and Cathy Song, "The Youngest Daughter" (2363-2364) **Friday:** ***share in small group Women's Story assignment.***	
October 30 November 1 November 3	**Monday:** Read *Sula*, Part One **Wednesday:** More of *Sula* **Friday:** More of *Sula*	**Relationships-Friendship**
November 6 November 8 November 10	**Monday:** Read all of *Sula;* Positionality essay due **Wednesday:** Angela Carter, "The Company of Wolves" (2232-2238) **Friday:** No class, Veteran's Day	**Relationships-love, marriage, and sexuality**
November 13 November 15 November 17	**Monday:** Margery Kempe, "(On Female Celibacy)" (19-24); Isak Dinesen, "The Blank Page" (1391-1394); and Flannery O'Connor, "Good Country People" (1880-1893) **Wednesday:** Anne Bradstreet, "To my Dear and Loving Husband" and "A Letter to Her Husband" (88-89); Mary Elizabeth Coleridge, "Marriage" (1148-1149); and Amy Lowell, "Venus Transiens" and "Madonna of the Evening Flowers" (1265-1266 **Friday:** Tillie Olsen, "Tell Me a Riddle" (1702-1728)	
November 20 November 22 November 24	**Monday:** Kate Chopin, *The Awakening* (1013-1076) **Wednesday:** *The Awakening* (1076-1101) **Friday:** No class. Thanksgiving	
November 27 November 29 December 1	**Monday:** Form groups and begin planning work **Wednesday:** Group work day **Friday:** Group 1 presents, reading assignments to be announced; Integrative project due	**Your choice-small groups will select themes & readings and lead class discussions**
December 4 December 6 December 8	**Monday:** Group 2 presents, reading assignments to be announced **Wednesday:** Group 3 presents, reading assignments to be announced **Friday:** Group 4 presents, reading assignments to be announced	
December 11	**Monday:** Final portfolios due	

Tips, Policies, and Advice

Please type all of your papers, using standard font, and edit your work carefully.

If you are unable to complete the course requirements, you may be eligible to take an incomplete grade. You must have completed the majority of the assignments and earned at least a C. If you take an incomplete, you have to complete the assignments. After one year, the "I" will translate into an "F."

Plagiarism occurs when you present work that you did not create as if it were your own. This includes not only submitting whole papers that you did not write but also using text or images

that you locate on websites or in print sources without proper attribution. You may quote, paraphrase, or summarize materials that you find elsewhere, as long as you indicate clearly where the material cam e from and document the quotation, reference or ideas appropriately. you must provide documentation even if you change the phrasing of a text. If you do not, you will receive an "F" on the assignment in question and possibly fail the entire course. If you are ever unsure about whether something should be documented, document it. If you're not sure if you're incorporating outside evidence appropriately, ask me.

If you have a learning disability and need assistance or other accommodations, please talk with me early in the semester. I can provide help or refer you to others who can be more helpful.

Let me know how I can help you. If you have questions, feel free to ask, I class, by phone, or by e-mail. Stop by and visit during office hours or at other times. One of the greatest pleasures of my work is talking with students, and whenever my door is open, I hope you'll feel welcome to drop in.

This course is a "safe zone." It's possible, even likely, that we will discuss some very personal issues during this course, so nothing anyone says about his/her personal experience should leave this room. In addition, even (or perhaps especially) when you disagree with others, I expect you to treat each other with respect. If you would like assistance with issues such as sexual harassment, discrimination on campus, or any issues that emerge in class, please come talk with me. If I can't help you I can find someone who can.

Woman's Story Rubric

	1	2	3
Story	The person sharing the story 'told' the story.	The person sharing the story relayed the story with interest and excitement.	The person sharing the story relayed the story in an interesting manner maybe using prompts, voice, etc.
Technique of story	The person sharing the story 'told' about the way the woman told her story.	The person sharing the story posed possible reasons for the way the woman told her story. Related this way of telling story with story telling techniques (ways) experienced in this class.	The person sharing the story compared and contrasted this manner (way) of story telling with other women's storied from class.
Interaction	The person sharing the story invited interaction at the end of the sharing.	The person sharing the story asked for interaction from the listeners several times during the story sharing.	The person sharing the story asked for interaction from the listeners throughout the story sharing almost as if it were a natural part of the sharing an conveying of this woman's story telling manner.

Each listener will rank the person sharing. The listener will also provide evidence for the ranking on this sheet. This will be done immediately after the sharing is complete.

Interview of a Woman

In an effort to help you understand how being a woman implies certain issues and concepts, you are asked to interview any woman who may understand how the fact that she is a woman effects the performance of her job. It is your responsibility to make sure that the person interviewed does routinely make some non-trivial statements of understanding.

After you have arranged for the interview, introduce yourself and explain that you are studying women in literature and are learning to bring concepts and issues facing women to foreground of your thinking. Indicate that your purpose for the interview is to find out how women feel about her job in terms of being a woman. How does her gender effect her successful performance of her job. Be sure to ask the following questions, but feel free to follow up on interesting things the interviewee says or on other questions that come to mind. Note that some suggestions or reminders are included below in italics.

Take extensive notes during your interview. You may want to ask the interviewee for permission to record the interview. Finally, write a 2 page occupational profile of the person you interviewed. Base the profile both on the information obtained (1 page) in the interview as well as your own interpretation (1 page) of this information. Turn in your notes (or tape) and a typed copy of the profile.

1. What is your name?

2. What is your occupation? Please explain what you do.

1. Did you attend college to train for this occupation? If not, have you received other post-secondary training, including on-the-job training, to help you do your job? At the time of your training for this job what kinds of gender issues surfaced? *If the interviewee does not do so, ask him/her to describe any post-secondary education or training.*

2. Has any of your training been different because of your gender? If so, please describe the training. *You may have to probe or give examples. You may also have to come back to this question after asking later questions.*

3. Describe the kinds of skills and manners that you use in your job that you feel are gender specific. Explain how you use them. *You may have to give examples or explanations. Take cues from the interviewee as to how much explanation in needed or appropriate.*
   Eyes down cast, Smiling, Deferring, Taking the minutes, Being responsible for food and/or decorations, Being asked to be aggressive like a man, etc.

4. If I were to do your job, what do you suggest I understand of these concepts and issues? Why?

5. How important is an understanding or use of the concepts and issues you have told me about to your successfully performing you job?

6. Are there any other things you would like to tell me related to your job and gender?

7. *Thank the interviewee for his/her time, and offer to give him/her a copy of your report when you have completed it.*